

# KFH GROUP, INC.

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## Graham Transit Transit Development Plan

*Final Report*

December, 2011

Under Subcontract to:  
Cambridge Systematics

*Prepared for the:*

Town of Bluefield  
and the  
Virginia Department of Rail and Public Transportation



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# Chapter 1

## Overview of Transit in the Town of Bluefield

### INTRODUCTION

The Virginia Department of Rail and Public Transportation (DRPT) has an emphasis on investing in transit systems that are meeting the existing demand for public transportation and desire to meet the growing demand for improved bus, rail, and ferry service through careful coordination of transit and land use planning. As such, DRPT requires that any public transit (bus, rail, ferry) operator receiving state funding prepare, adopt, and submit a Transit Development Plan (TDP) at least every six years. DRPT provides a set of TDP requirements that form the basis of the planning effort. This report documents the Graham Transit TDP.

### OBJECTIVE

The objective of this plan is to assist Graham Transit with creating a TDP with a six-year planning horizon. The TDP is intended to:

- Service as a management and policy document for Graham Transit,
- Provide DRPT with information necessary for programming and planning,
- Provide DRPT with an up-to-date record of Graham Transit's capital and operating budgets, and
- Provide Graham Transit with the basis for including capital and operating projects in the Six Year Improvement Program (SYIP), the Statewide Transportation Improvement Plan (STIP), and the Long Range Transportation Plan (LRTP).

This TDP was developed to the requirements and followed the report format as stated in the DRPT TDP Requirements document.

## BACKGROUND

The Town of Bluefield, Virginia, is located in Tazewell County, along the Bluestone River, in Southwest Virginia. It is a “sister” town to Bluefield, West Virginia, which is directly adjacent across the border. The Town was previously named “Graham,” which is the name of the town’s transit program, Graham Transit. Together the region is called the “Bluefields.” East River Mountain, at 3,400 feet is a prominent feature of the area, providing a natural barrier between Virginia and West Virginia. The Town of Bluefield calls itself the “Tallest Town in Virginia,” at 2,389 feet in elevation.

Transportation corridors that serve the Town include U.S. Highways 460, 19 and 52, Interstate 77, and the Norfolk Southern Railroad. Figure 1-1 displays a map of Bluefield and the surrounding region.

Historically, the coal industry was largely responsible for the area’s economic vitality, and the Greater Bluefield Chamber of Commerce highlights the coal industry as a continuing influence in the region, which is home to several coal industry-oriented equipment manufacturers.

Several higher education institutions are located in the region, including Bluefield College (VA), Bluefield State College (WV), Southwest Virginia Community College (Richlands, VA), and National College (Princeton, WV). The 2005 – 2009 American Community Survey indicated the leading industries for employment in the Town of Bluefield were education services, health care and social services (30%), and arts, entertainment, recreation, accommodation, and food services (15%). The unemployment rate in Tazewell County (June, 2011) is 6.4%, which is similar to the Commonwealth’s unemployment rate of 6.3% and lower than the U.S. unemployment rate of 9.3%.<sup>1</sup>

According to the 2010 Census, Bluefield had a population of 5,444 people, which is 7.2% higher than the 2000 population of 5,078 people.<sup>2</sup> The Town’s population growth in the ten-year period was higher than that of surrounding Tazewell County

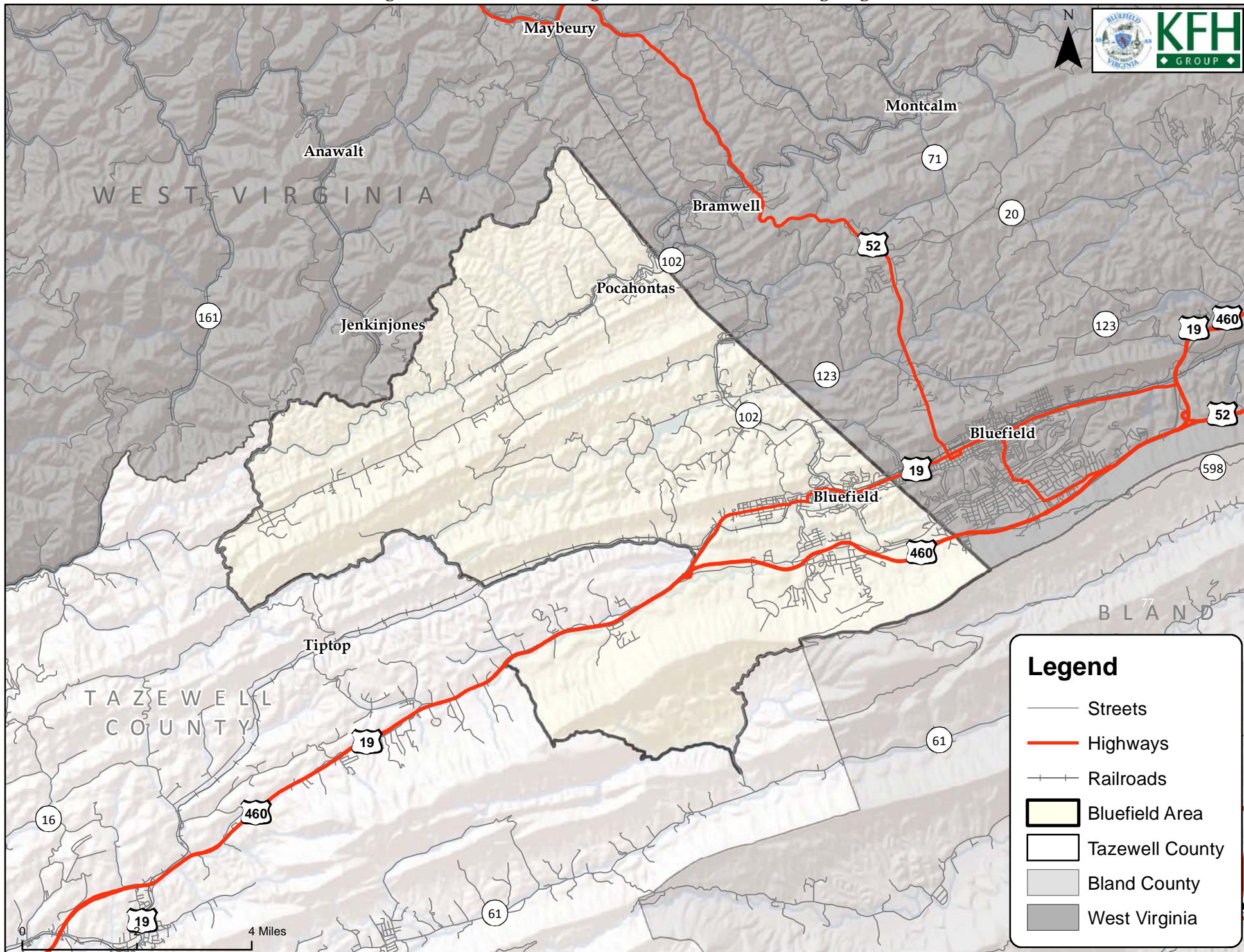
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<sup>1</sup> Virginia Employment Commission, Local Area Unemployment, website.

<sup>2</sup> U.S. Census Bureau, Census 2000 and Census 2010.

Figure 1-1: Bluefield, Virginia and the Surrounding Region

1-3



(1.1%), and lower than that of the Commonwealth of Virginia (13%). Data from the 2005 – 2009 American Community Survey indicated that the median age of Town residents was 43.7, which is older than the U.S. median age of 36.5.<sup>3</sup> Bluefield consists of 7.6 square miles, resulting in a population density of approximately 716 persons per square mile.

Public transportation in the Town is provided by Graham Transit, a department within the Town government. Graham Transit operates three deviated fixed-route bus routes for the Town and neighboring Pocahontas.

## **HISTORY, GOVERNANCE AND ORGANIZATIONAL STRUCTURE**

### **History**

Prior to 1993, public transportation in the region was operated through Tazewell County using a private contractor. At that time Tazewell County was the fiscal agent for the state and federal transit grants, but much of the demand was in the Bluefield area. In its oversight role, Department of Rail and Public Transportation (DRPT) asked the Town if the public transit vehicles could be stored at the Town's public works facility. The Town agreed to house the vehicles for the transit program. Service quality concerns led DPRT to ask if the Town would be interested in taking over the service entirely, which it did in 1993. From 1993 until 1998, when the Appalachian Agency for Senior Citizens (AASC) started Four-County Transit with a demonstration grant, Graham Transit was the only service available in Tazewell County.

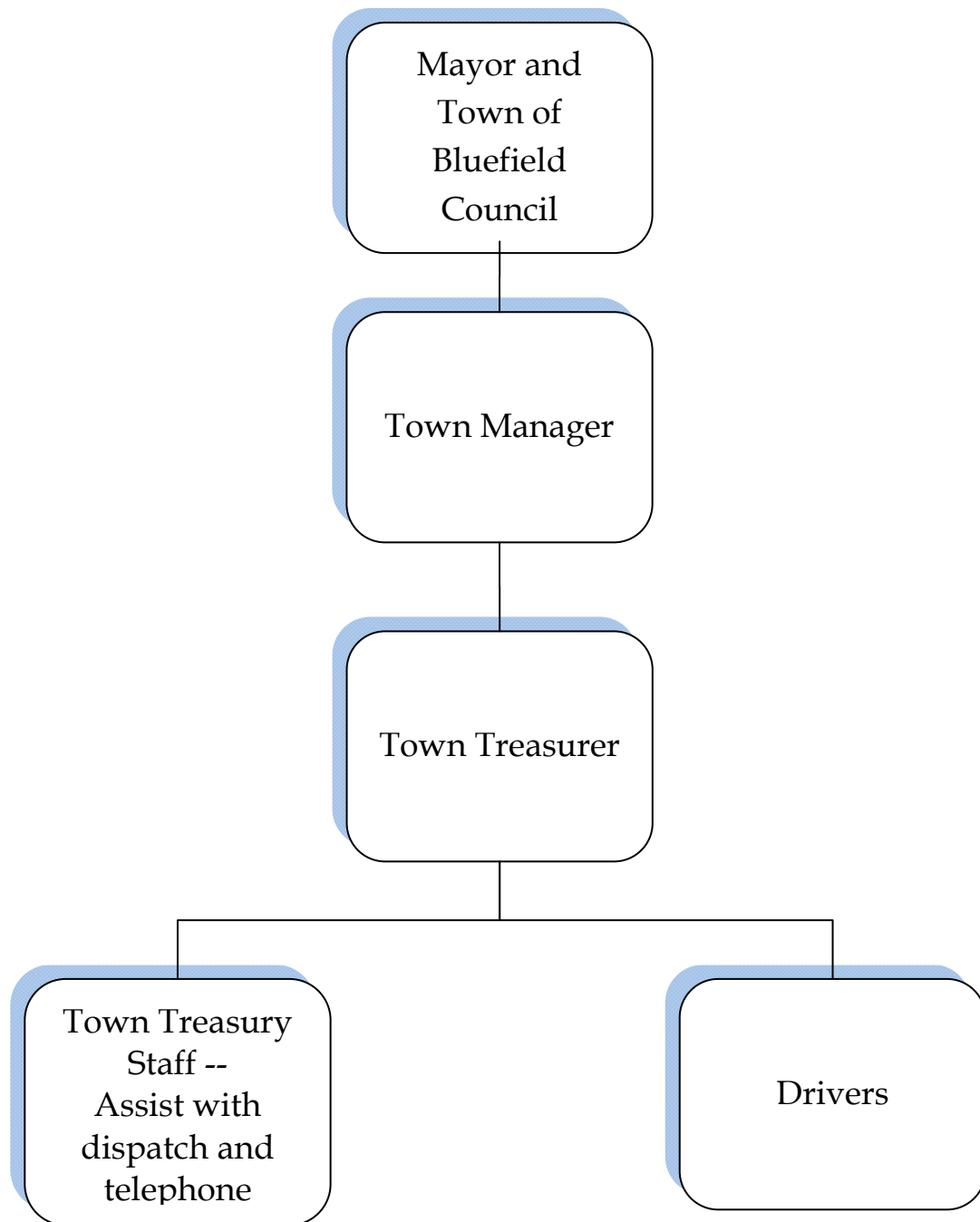
Graham Transit has its focus on Bluefield and the surrounding area, while Four-County operates throughout Buchanan, Dickenson, Russell, and Tazewell Counties.

### **Governance and Organizational Structure**

The Town of Bluefield operates Graham Transit directly, and all staff members are employees of the Town. The Town Treasurer serves as the Transit Manager and oversees the drivers. The vehicles are housed and maintained by the Town's Public Works Department. The Town Treasurer reports to the Town Manager and the Town Council serves as the Board for the transit program. This structure is depicted in Figure 1-2.

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<sup>3</sup> U.S. Census Bureau, 2005-2009 American Community Survey Fact Sheet for Bluefield Virginia, [www.factfinder.census.gov](http://www.factfinder.census.gov).



**Figure 1-2: Graham Transit Organizational Structure**

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## TRANSIT SERVICES PROVIDED AND AREAS SERVED

### Directly Operated Deviated Fixed-Route Service

Graham Transit operates three deviated fixed routes, which can be accessed at designated stops or flagged down as needed by passengers. Graham Transit will deviate from the route to pick up/drop off passengers within a reasonable distance of the route. These routes are described below.

#### *Main Route*

Graham Transit's Main Route operates Monday - Friday, from 7:25 a.m. until 6:00 p.m. Service is also offered on the first Saturday of each month. The Main Route provides service from downtown Bluefield to Crescent View and Graham Manor (housing areas), making a connection to Bluefield Area Transit on the eastern town border, and then serving downtown again, the Twin City Plaza, the Ridgeview Plaza (Walmart), the West Gate Shopping Center, the West Wood Medical Park, and Bluefield Regional Hospital. The route is timed to operate hourly.

#### *Gold Route*

Graham Transit's Gold Route operates Monday - Friday, from 7:00 a.m. to 6:00 p.m. Service is also offered on the first Saturday of each month. The Gold Route provides service through several residential neighborhoods, connecting them to the public library and Municipal Building, Food City, College Plaza, the Ridgeview Plaza (Walmart), the Twin City Plaza, and downtown. The Gold Route is also timed to operate hourly.

#### *Pocahontas Route*

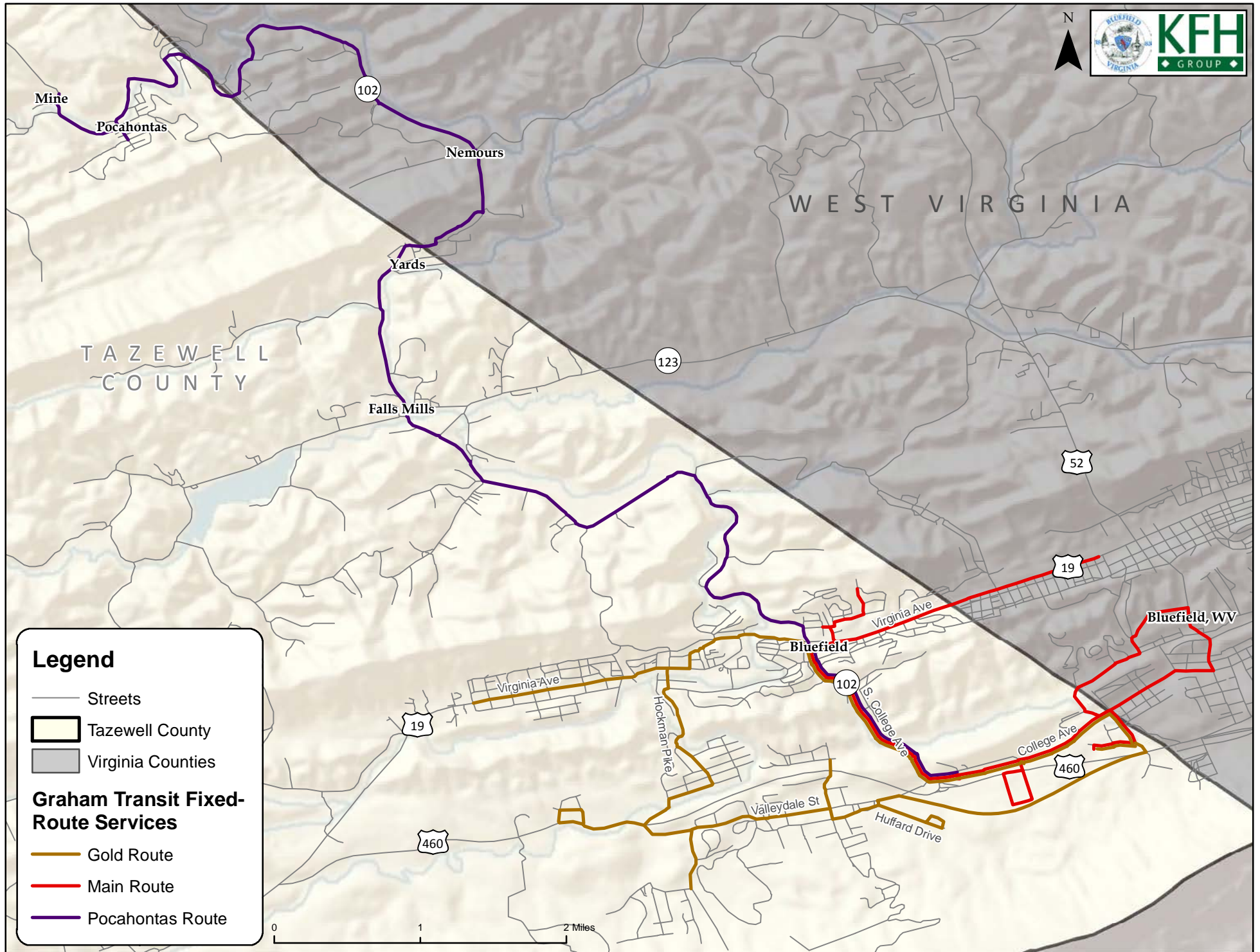
The Pocahontas Route operates Tuesday, Wednesday, and Friday, from 7:00 a.m. to 3:00 p.m. This route connects the community of Pocahontas to Bluefield, with stops at the Indian Princess apartments, the Pocahontas Mine, the Pick and Save, the Nemours Grocery (WV), Falls Mills, Wood Tech, the Ridgeview Plaza (Walmart), and downtown. The Pocahontas route operates hourly.

Figure 1-3 represents a system map of the three Graham Transit routes. Passengers can transfer from one route to another at the Treasury Office in downtown and at the Walmart. Exhibit 1-1 provides the schedules.

Graham Transit is closed on seven holidays throughout the year, including New Year's Day, Memorial Day, July 4<sup>th</sup>, Labor Day, Veterans Day, Thanksgiving Day, and Christmas Day.

Figure 1-3: Graham Transit Routes

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**Exhibit 1-1: MAIN ROUTE BUS SCHEDULE**

Treas. Office	Crescent View	Graham Manor	Bluefield Transit	Treas Office	Twin City Plaza Kroger	Ridgeview Plaza Walmart	College Plaza	Food City	West Gate	West Wood	Bluefield Regional		
7:25	7:35	7:40	7:50	7:55	8:00	8:02	8:05	8:10	8:12	8:15	8:17		
8:25	8:35	8:40	8:50	8:55	9:00	9:02	9:05	9:10	9:12	9:15	9:17		
9:25	9:35	9:40	9:50	9:55	10:00	10:02	10:05	10:10	10:12	10:15	10:17		
10:25	10:35	10:40	10:50	10:55	11:00	11:02	11:05	11:10	11:12	11:15	11:17		
11:25	11:35	11:40	11:50	11:55	12:00	12:02	12:05	12:10	12:12	12:15	12:17		
12:25	12:35	12:40	12:50	12:55	1:00	1:02	1:05	1:10	1:12	1:15	1:17		
1:25	1:35	1:40	1:50	1:55	2:00	2:02	2:05	2:10	2:12	2:15	2:17		
2:25	2:35	2:40	2:50	2:55	3:00	3:02	3:05	3:10	3:12	3:15	3:17		
3:25	3:35	3:40	3:50	3:55	4:00	4:02	4:05	4:10	4:12	4:15	4:17		
4:25	4:35	4:40	4:50	4:55	5:00	5:02	5:05	5:10	5:12	5:15	5:17		
5:25	5:35	5:40	5:50	5:55	Service Ends								

**GOLD ROUTE BUS SCHEDULE**

Treas. Office	West Graham	Mobile Estates	Pine Hill Park	Fincastle Estates	Sedge-Wood	Forest Hills	Double Gates	Hickory Hills	Public Library	Food City	College Plaza	Ridgeview Plaza Walmart	Twin City Plaza Kroger
7:00	7:07	7:13	7:15	7:20	7:24	7:29	7:33	7:37	7:40	7:45	7:48	7:50	7:55
8:00	8:07	8:13	8:15	8:20	8:24	8:29	8:33	8:37	8:40	8:45	8:48	8:50	8:55
9:00	9:07	9:13	9:15	9:20	9:24	9:29	9:33	9:37	9:40	9:45	9:48	9:50	9:55
10:00	10:07	10:13	10:15	10:20	10:24	10:29	10:33	10:37	10:40	10:45	10:48	10:50	10:55
11:00	11:07	11:13	11:15	11:20	11:24	11:29	11:33	11:37	11:40	11:45	11:48	11:50	11:55
12:00	12:07	12:13	12:15	12:20	12:24	12:29	12:33	12:37	12:40	12:45	12:48	12:50	12:55
1:00	1:07	1:13	1:15	1:20	1:24	1:29	1:33	1:37	1:40	1:45	1:48	1:50	1:55
2:00	2:07	2:13	2:15	2:20	2:24	2:29	2:33	2:37	2:40	2:45	2:48	2:50	2:55
3:00	3:07	3:13	3:15	3:20	3:24	3:29	3:33	3:37	3:40	3:45	3:48	3:50	3:55
4:00	4:07	4:13	4:15	4:20	4:24	4:29	4:33	4:37	4:40	4:45	4:48	4:50	4:55
5:00	5:07	5:13	5:15	5:20	5:24	5:29	5:33	5:37	5:40	5:45	5:48	5:50	5:55

**POCAHONTAS ROUTE BUS SCHEDULE**

Blfd VA.	Wood Tech	Falls Mills	Yards	Nemours Grocery	Pick & Save	Pocahontas	Mine	Indian Princess	Water Street	Nemour Grocery	Falls Mills	Wal Mart	Kroger
7:00	7:04	7:06	7:08	7:10	7:15	7:18	7:20	7:23	7:28	7:36	7:40	7:50	7:55
8:00	8:04	8:06	8:08	8:10	8:15	8:18	8:20	8:23	8:28	8:36	8:40	8:50	8:55
9:00	9:04	9:06	9:08	9:10	9:15	9:18	9:20	9:23	9:28	9:36	9:40	9:50	9:55
10:00	10:04	10:06	10:08	10:10	10:15	10:18	10:20	10:23	10:28	10:36	10:40	10:50	10:55
11:00	11:04	11:06	11:08	11:10	11:15	11:18	11:20	11:23	11:28	11:36	11:40	11:50	11:55
12:00	12:04	12:06	12:08	12:10	12:15	12:18	12:20	12:23	12:28	12:36	12:40	12:50	12:55
1:00	1:04	1:06	1:08	1:10	1:15	1:18	1:20	1:23	1:28	1:36	1:40	1:50	1:55
2:00	2:04	2:06	2:08	2:10	2:15	2:18	2:20	2:23	2:28	2:36	2:40	2:50	2:55
3:00	Serv. Ends												
The Pocahontas Route will run Tuesday, Wednesday & Friday from 7:00 a.m.-3:00 p.m.													

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## Other Public Transportation Services in the Region

Graham Transit links to Bluefield Area Transit, which is a large transit program serving Mercer and McDowell Counties (WV). Bluefield Area Transit's Red (Southside) Route serves the Westgate Shopping Center in Bluefield (VA), and the Walmart in Bluefield (VA). Figure 1-4 shows the four locations where it is possible to connect between Bluefield Area Transit and Graham Transit, including the two in Virginia and two additional locations in West Virginia.

The region is also served by Four-County Transit, which is the multi-county public transportation provider for Virginia's Planning District 2, which includes Buchanan, Dickenson, Russell, and Tazewell Counties. The following two Four County routes serve Bluefield:

- ***Four Seasons Tazewell-Bluefield Connector.*** This route provides intercity service connecting Bluefield to Tazewell. Four trips per day are offered with stops in Bluefield (VA) at the College Plaza and in Bluefield (WV) at the Princeton Avenue transfer location. Graham Transit riders can connect with this route at the College Plaza stop.
- ***SwVCC Eagle Express.*** This route offers one early morning trip and one late afternoon return trip with service connecting Pocahontas and Bluefield to Richlands and the Southwest Virginia Community College in Cedar Bluff. While this route does share three stops with Graham Transit, the morning trip is earlier than Graham Transit's first trip, and the afternoon trip is later than Graham Transit's last trip.

These deviated fixed routes are shown in Figure 1-5, including the geographic locations that Graham Transit and Four County Transit each serve.

## Taxi and Private Transportation Providers

The following taxi and private transportation providers operate in the region:

- ***Cimarron Coach of Virginia,*** Falls Mills (VA). According to yellowpages.com, Cimarron Coach provides charter bus transportation, non-emergency medical transportation, employment transportation, and school transportation.
- ***Taxi One,*** Princeton (WV). Local taxi operator.

Figure 1-4: Graham Transit Connections with Bluefield Area Transit

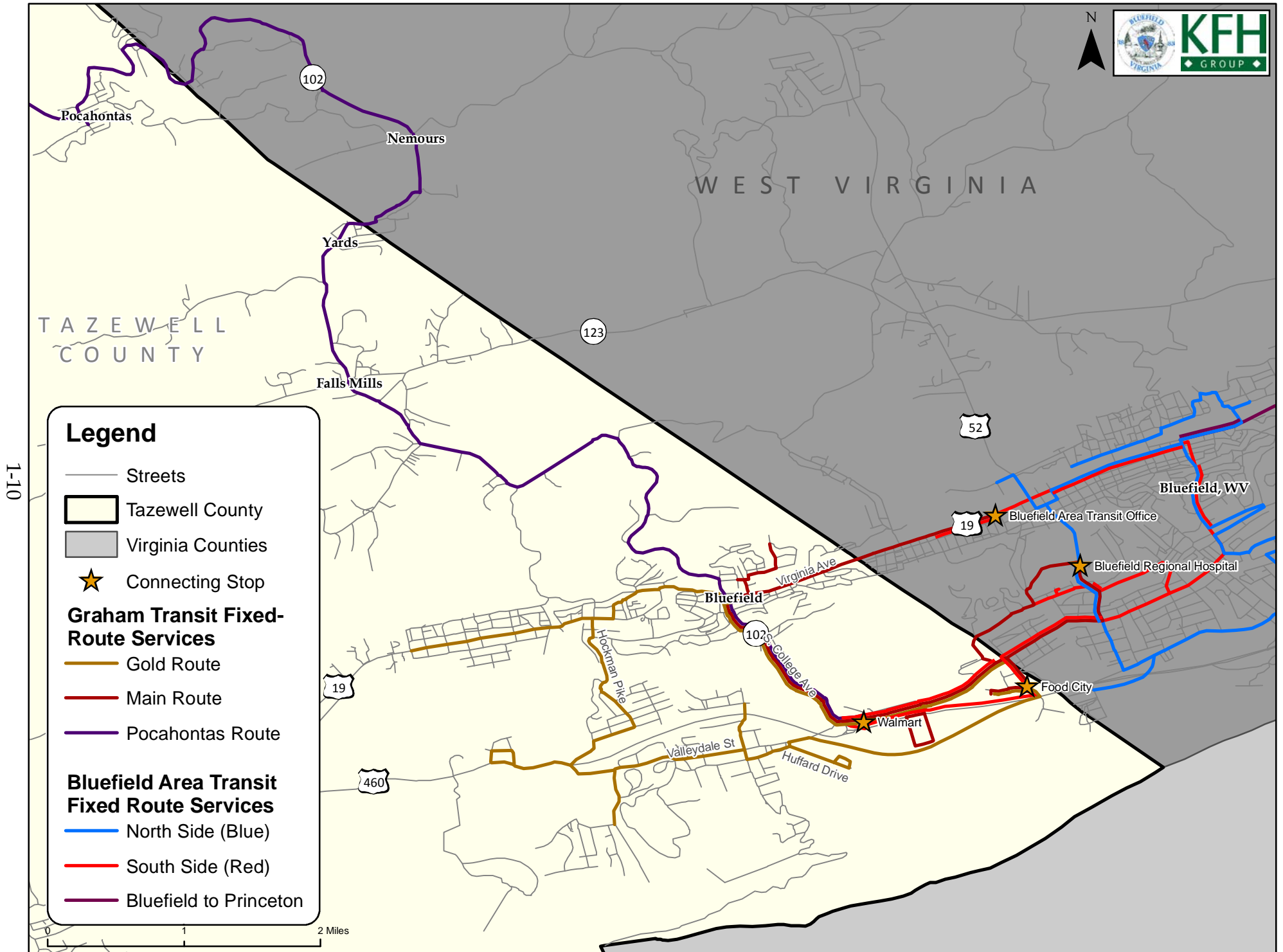
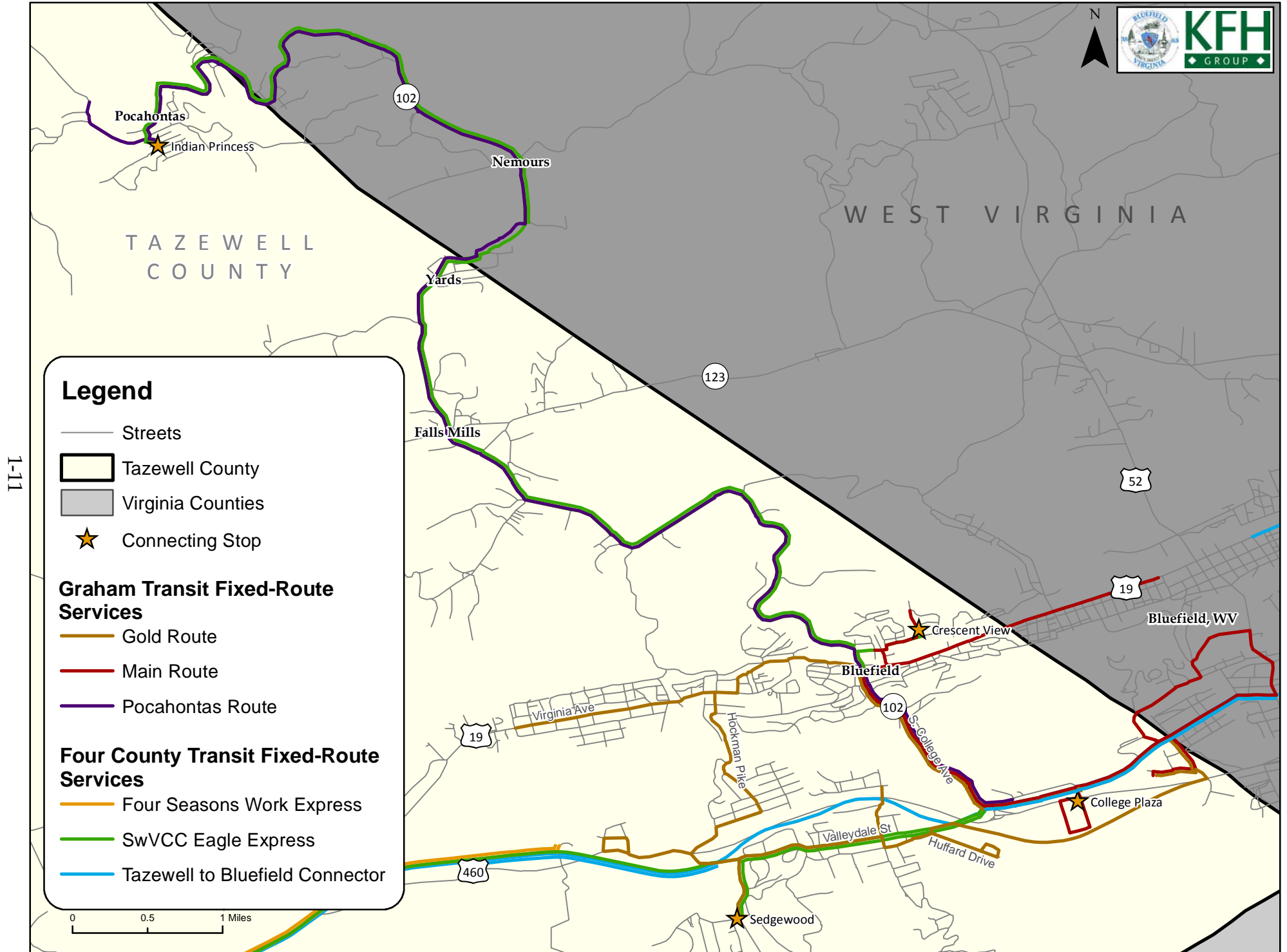


Figure 1-5: Graham Transit Connections with Four County Transit



## **Human Service Transportation**

Human service transportation in the region is provided primarily by Four County Transit, which has agreements to provide service to area congregate nutrition sites and adult day care. The Bluefield area senior nutrition program is operated by Community Action Southeastern West Virginia (CASEWV), with programs at the Bluefield Recreation Center and the Salvation Army.

## **Medicaid Transportation**

Medicaid transportation is arranged by Logisticare for this region of Virginia.

## **Intercity Bus**

Intercity bus service is available in Bluefield (WV). The Greyhound station is located at 514 Scott Street. Bluefield (WV) is served on the Detroit-Jacksonville route, with southbound trips from Bluefield leaving at 2:40 a.m. and 10:15 a.m., traveling to Wytheville, Winston-Salem (NC), Charlotte (NC), and on to stops in South Carolina, Georgia, and then Jacksonville (FL). Northbound trips leave Bluefield at 6:50 a.m. and 10:50 p.m., with service to Beckley (WV) and Charleston (WV), where transfers to the broader intercity bus network are available.

## **Amtrak**

The closest Amtrak service to Bluefield is along the Cardinal/Hoosier State route, which travels from Chicago to New York via Indianapolis, Cincinnati, Charleston (WV), Washington, DC, Baltimore (MD) and Philadelphia (PA). The closest station is in Hinton (WV).

## **FARE STRUCTURE**

The fare to ride Graham Transit is \$0.25 per trip. Children five years of age and under ride free. Free transfers are offered. There is not currently a transfer policy with Four County or Bluefield area Transit.

## **VEHICLE FLEET**

Graham Transit's current public transit vehicle fleet includes four 14-passenger body-on-chassis small buses and one staff car. All of the revenue service vehicles are

lift-equipped. Table 1-1 provides a summary of the vehicle inventory. Figure 1-6 provides an example of a Graham Transit vehicle.

**Table 1-1: Graham Transit Vehicle Inventory**

Local Fleet Number	Model Year	Manufacturer	Model and Type	Seating Capacity	Wheel-chair Stations	Use	Condition	Mileage January 2011
82	2009	Ford	Supreme Bus	14	2	Regular Route	Excellent	54,468
81	2009	Ford	Supreme Bus	14	2	Regular Route	Excellent	59,100
83	2009	Ford	Supreme Bus	14	2	Regular Route	Excellent	53,855
20	2002	Jeep	Grand Cherokee SUV	5	0	Staff Car	Good	50,583
61	2006	Ford	Supreme Bus	14	2	Back-Up/Breaks	Good	104,779



**Figure 1-6: Graham Transit Vehicle**

## FACILITIES

### Buildings

The vehicles are housed and maintained at the Town's Public Works garage, the Graham Transit portion of which was funded through DRPT/Federal Transit Administration (FTA) grants. The entire facility is shown in Figure 1-7, though only the three smaller bays are dedicated to Graham Transit.



**Figure 1-7: Bluefield Public Works Facility**

### Bus Stops and Passenger Amenities

The four most heavily used bus stops have signs and a shelter. These are located at the Treasurer's Office in downtown Bluefield, the Crescent View housing complex, Walmart, and Lowes. The other stops in the system are not signed.

## **SAFETY AND SECURITY**

Graham Transit has a Safety Policy Statement, updated in June 2010, which outlines its safety and health program, focusing on employees. The objective of the safety and health program is to reduce the number of injuries and illnesses to an absolute minimum, with the goal of zero accidents and injuries. Components of the program include the following:

- Providing mechanical and physical safeguards to the maximum extent possible.
- Conducting safety and health inspections to find, eliminate or control safety and health hazards, as well as unsafe working conditions and practices, and to comply fully with the safety and health standards for every job.
- Training all employees in good safety and health practices.
- Providing necessary personal protective equipment and instructions for use and care.
- Developing and enforcing safety and health rules, and requiring that employees cooperate with these rules as a condition of employment.
- Investigating, promptly and thoroughly, every accident to find out what caused it and correct the problem so it will not happen again.
- Setting up a system of recognition and awards for outstanding safety service or performance.

Transit vehicles are equipped with two-way radios that drivers use to communicate with the Treasury Office, with public works (if needed for a mechanical break-down), and with each other. The vehicles are not currently equipped with security cameras or automatic vehicle location technology.

### **Fare Collection**

Graham Transit's buses are equipped with manual fare boxes in which passengers drop their fares. The fare boxes are pulled once a week, with the fare revenue deposited by the Treasurer's Office.

## **PUBLIC OUTREACH**

Since Graham Transit is part of the Town government, the main forum for public input is Town Council meetings, two of which are conducted each month and are open to the public. Graham Transit also publishes brochures that include the hours, the schedule, the fare, and contact information. Brochures are available at key locations in the Bluefield area. Basic transit information and the schedule are also posted on the Towns' website. Graham Transit does not have a Transit Advisory Committee.

## **Chapter 2**

# **Goals, Objectives, and Standards**

This section articulates the issues that were considered during the development of the Plan, presents Graham Transit's mission, presents a draft set of goals and objectives for the system, and presents a proposed set of performance standards.

### **GOALS AND ISSUES FOR THE TRANSIT DEVELOPMENT PLAN (TDP)**

At the initial Steering Committee meeting for the project, the following goals and issues were discussed as considerations for the Plan:

- Graham Transit has had requests to add service on the Pocahontas route so that it operates daily on a similar schedule to the Main and Gold routes.
- There may be a need for additional service in the Pocahontas area oriented to an additional campus for Bluefield College. The College may take over the building that was previously Pocahontas High School.
- Graham Transit does not have goals and objectives for the transit program, and a draft set were developed during the TDP process.
- The current program operates with few staff members, with the Transit Manager also serving as the Treasurer for the Town and the primary supervisor/dispatcher. This may be an issue if the system is to grow.
- Connections with Bluefield Area Transit and Four-County Transit work well and should be preserved and enhanced where feasible.

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## GRAHAM TRANSIT MISSION AND GOALS

The mission of Graham Transit is to link the residents of Bluefield (VA) with surrounding communities, shopping areas, medical parks, and hospitals.<sup>1</sup> Graham Transit has had various goals over the years, but does not have an adopted set of goals and objectives for the program. It is important that Graham Transit have specific goals, objectives, and service standards to help guide the system and objectively measure if the system is accomplishing its mission.

### Goals and Objectives

Goals are broad and general, providing policy guidance as to how Graham Transit's mission should be accomplished. Objectives provide more specific and tangible direction as to how transit goals can be met. The following goals and objectives for Graham Transit were drafted through the TDP process.

**Goal:** Offer convenient access to medical facilities, employment areas, shopping centers, schools, and community agencies.

**Objectives:**

1. Provide deviated fixed-route service to major medical facilities, employment areas, shopping centers, schools, and community agencies in the Town of Bluefield.
2. Operate transit services during a span of service that allows riders to access key community destinations.
3. Offer hourly service throughout Bluefield.
4. Offer public transportation Monday through Saturday.

**Goal:** Provide adequate mobility options that enable area residents to maintain personal independence and be engaged in civic and social life.

**Objectives:**

1. Offer wheelchair-accessible, deviated fixed routes so that people with mobility limitations can use Graham Transit.
2. Provide service to areas of Bluefield where there are concentrations of older adults and/or people with disabilities.
3. Ensure that information regarding Graham Transit is readily available within the community for older adults and people with disabilities.

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<sup>1</sup> Graham Transit website.

**Goal:** Provide cost effective service.

**Objectives:**

1. Monitor costs on a monthly basis to ensure they are in keeping with the annual operating budget.
2. Monitor productivity on a monthly basis to ensure that Graham transit is maintaining or improving upon the number of trips per revenue hour provided. Adjust routes if needed to maintain a cost effective service.

**Goal:** Coordinate services with Four County Transit and Bluefield Area Transit to ensure effective service delivery to the community.

**Objectives:**

1. Meet with Four County Transit and Bluefield Area Transit at least twice a year to discuss transit needs, as well as current and planned services for the community.
2. Share information concerning transit needs and initiatives, as appropriate.
3. Add references to Four County Transit and Bluefield Area Transit on the Graham Transit schedule and encourage similar references on Four County's and Bluefield Area's schedules.

**Goal:** Manage, maintain, and enhance the existing public transportation system to ensure safe and reliable transportation services.

**Objectives:**

1. Continue to maintain the fleet in accordance with the manufacturer's recommended maintenance schedules.
2. Replace vehicles and equipment as recommended by DRPT's useful life criteria.
3. Monitor system safety and take corrective actions if necessary.

## SERVICE STANDARDS

Service standards are benchmarks by which service performance is evaluated. Service standards are typically developed in several categories of service, such as service coverage, passenger convenience, fiscal condition, and passenger comfort. The most effective service standards are straightforward and relatively easy to calculate and

understand. Service standards provide specific and measurable ways to determine if Graham Transit is meeting its goals and objectives.

Graham Transit does not currently have defined service standards. There are several basic service standards that Graham Transit could use to help evaluate service on a regular basis to ensure that Graham Transit is carrying out its mission in the most effective manner possible.

Table 2-1 presents service standards suggested for Graham Transit.

## **PROCESS FOR DEVELOPING AND UPDATING GOALS, OBJECTIVES, AND SERVICE STANDARDS**

These draft goals, objectives, and service standards were developed as a component of the 2011 Transit Development Plan for Graham Transit. The system did not previously have these measurement tools in place. As such, it is recommended that Graham Transit examine these goals, objectives, and service standards on an annual basis to ensure that they are appropriate and in keeping with what the system is experiencing. If additional goals are envisioned, or if specific goals, objectives, or standards are no longer appropriate, represent under-achievement, or cannot be reasonably attained, Graham Transit staff can update these measures to reflect new circumstances.

In addition to an in-house staff review of these measurement tools, it is also recommended that the Regional Transportation Advisory Committee (the creation of which is a recommendation of this TDP) also review the goals, objectives, and service standards annually, following the Graham Transit staff review. It is recommended that this annual review take place as part of the grant preparation cycle. Any changes for these measurement tools can be included in the annual TDP update.

Table 2-1: Service Standards

Category	Standard
<b>Availability</b>	<p><i>Service availability is a direct reflection of the level of financial resources available for the transit program. Service coverage, frequency, and span of service are considered under the category of "availability."</i></p> <p><b>Service Coverage:</b></p> <ul style="list-style-type: none"> <li>• Residential areas: <ul style="list-style-type: none"> <li>○ Areas with concentrations of transit dependent people</li> </ul> </li> <li>• Multi-Family housing complexes with over 25 units</li> <li>• Major activity centers: <ul style="list-style-type: none"> <li>○ Employers or employment concentrations of 200+</li> <li>○ Health centers</li> <li>○ Middle and high schools</li> <li>○ Colleges/universities</li> <li>○ Shopping centers of over 10 stores or 100,000 sf</li> <li>○ Social service/government centers</li> </ul> </li> </ul>
<i>Frequency is currently hourly on the deviated fixed routes.</i>	<p><b>Frequency:</b></p> <ul style="list-style-type: none"> <li>○ 60 min. on weekdays</li> <li>○ 60 min. on Saturdays</li> </ul>
<i>The current span of service is 7:00 a.m. to 6:00 p.m., M-F, and the first Saturday of every month.</i>	<p><b>Span:</b></p> <p>7:00 a.m. to 6:00 p.m. on weekdays</p>
<b>Patron Convenience</b>	
<b>Bus Stop Spacing</b>	4 to 5 per mile, as needed based on land uses
<b>Dependability</b>	No missed trips -- 95% on-time service (0 to 5 minutes late) -- No trips leaving early
<b>Fiscal Condition</b>	
<b>Farebox Recovery</b>	<p>Review and modify, if possible, services that exhibit less than 60% of average</p> <p>Review and modify, if warranted, services between 60% and 80% of average</p> <p><b>Average is currently 4%</b></p>

Category	Standard
<b>Productivity (Passenger/revenue hour)</b>	Review and modify, if possible, services that exhibit less than 60% of average Review and modify, if warranted, routes between 60% and 80% of average Average is currently 4.15 trips per revenue hour
<b>Cost Effectiveness (Cost per trip)</b>	Review and modify, if possible, services that exhibit less than 60% of average Review and modify, if warranted, routes between 60% and 80% of average Average is currently \$6.77 per trip
<b>Passenger Comfort</b>	
<b>Waiting Shelters</b>	Ten or more boardings per day
<b>Bus Stop Signs</b>	Should have the system name, contact information, and route
<b>Public Information</b>	Timetable, maps, and website current and accurate
<b>Revenue Equipment</b>	Clean and good condition
<b>Safety</b>	<b>Incidents Per 100,000 Revenue Miles</b> .10 or fewer "reportable incidents" per 100,000 miles, as defined by the National Transit Database. A reportable incident is one in which one or more of the following conditions apply: <ul style="list-style-type: none"> <li>• A fatality</li> <li>• Injuries requiring medical attention away from the scene for one or more persons</li> <li>• Property damage equal to or exceeding \$25,000.*</li> </ul>

\*National Transit Database, 2010 Rural Reporting Manual.

Source: These standards were developed from a number of sources, including Triangle Transit Authority, Regional Bus Service Standards, 2004; and TCRP, Transit, Capacity and Quality of Service Manual.

## **Chapter 3**

# **Service and System Evaluation and Transit Needs Analysis**

### **INTRODUCTION**

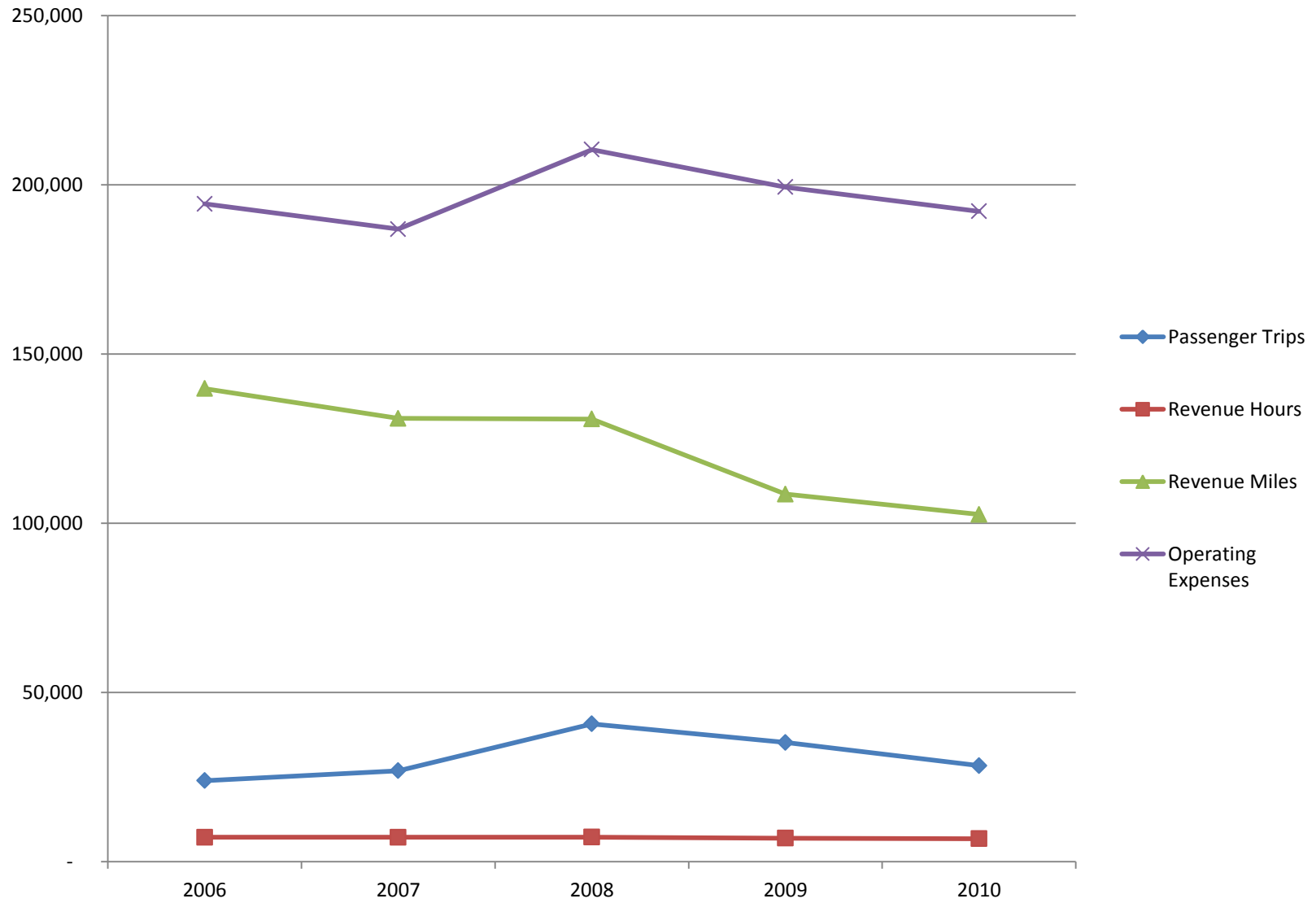
This section of the TDP focuses on two primary analyses. The first area of focus is a description and comprehensive analysis of the recent performance of Graham Transit, including a trend analysis, peer analysis, boarding/alighting study, and a passenger survey. The second area of focus provides an analysis of transit needs and includes demographic and land use analyses, a review of relevant studies and plans, and a discussion of stakeholder input.

### **SERVICE AND SYSTEM EVALUATION**

#### **Trend Data**

Table 3-1 provides the operating statistics for Graham Transit for Fiscal Years 2006-2010, as reported by Graham Transit and the Virginia Transit Performance Report (2004-2008). As these data show, hours, miles, trips, and expenses peaked in 2008, with the system cutting back on hours, miles, and expenses in 2009. Revenue hours were decreased by 6% between FY 2008 and FY 2010 and vehicle revenue miles were reduced 21.6%. Ridership was also down (30%), along with operating expenses (down 8.6%). These trends are shown graphically in Figure 3-1.

The FY 2010 cost per hour for Graham Transit was \$28.08, which is slightly lower than the costs per hour in FY 2009 and FY 2008. Graham Transit's cost per hour is very similar to its neighboring transit provider, Four County Transit, which operated at \$28.65 per revenue hour in FY 2008. The FY 2010 cost per trip for Graham Transit was \$6.77, which was higher than the previous two years, a result of fewer passenger trips. It should be noted the boarding alighting data, summarized on page 3-8, indicate that Graham Transit ridership is likely to have rebounded significantly in FY 2011.

**Figure 3-1: Graham Transit Annual Operating Data Trends**

**Table 3-1: Graham Transit  
Operating Statistics and Performance Measures  
FY 2006- FY 2010 (1)**

Year	Passenger Trips	Revenue Hours	Revenue Miles	Trips Per Revenue Hour	Trips Per Revenue Mile	Miles Per Hour
2006	23,968	7,240	139,800	3.31	0.17	19.31
2007	26,885	7,240	131,000	3.71	0.21	18.09
2008	40,754	7,280	130,800	5.60	0.31	17.97
2009	35,225	6,968	108,621	5.06	0.32	15.59
2010	28,392	6,842	102,600	4.15	0.28	15.00

Year	Operating Expenses	Fare Revenue	Cost Per Trip	Cost Per Hour	Cost Per Mile	Farebox Recovery
2006	\$ 194,366	\$ 11,216	\$ 8.11	\$ 26.85	\$ 1.39	6%
2007	\$ 186,886	\$ 9,111	\$ 6.95	\$ 25.81	\$ 1.43	5%
2008	\$ 210,389	\$ 10,637	\$ 5.16	\$ 28.90	\$ 1.61	5%
2009	\$ 199,299	\$ 8,621	\$ 5.66	\$ 28.60	\$ 1.83	4%
2010	\$ 192,156	\$ 7,098	\$ 6.77	\$ 28.08	\$ 1.87	4%

*Source: Graham Transit and The Virginia Transit Performance Report (2004-2008).*

(1) The Town of Bluefield's fiscal year runs from October 1 to September 30.

## Peer Review

While it is most relevant for a transit agency to examine its own performance over time, it is valuable to know the operating statistics for transit programs that could be considered “peers,” either by virtue of location, service area characteristics, or size. The study team used FY 2008 data from the Virginia Transit Performance Report for this analysis, choosing peers that provided deviated fixed route service in relatively small

Virginia towns, with similar annual ridership data. The results of this peer review are presented in Table 3-2. These data show that for FY 2008 Graham Transit:

- Provided service for the lowest cost per hour and cost per trip among the peer systems. This is logical, given that Graham Transit operates with minimal administrative and support staff.
- Experienced service productivity that was very similar to the mean.
- Operated in an area with a smaller population base than many of the peer systems.
- Operated 52% more vehicle revenue miles than the mean value for the peer systems. This is a reflection of the more rural land uses in the area that necessitate longer trips in between passenger origins and destinations.

## **Route Evaluation**

This section of the report provides an overview of the system's daily ridership as well as detailed analyses for each fixed-route and stop, using data collected by KFH Group in August, 2011. On Wednesday, August 10, 2011, KFH Group conducted boarding and alighting passenger counts on Graham Transit's three routes. Temporary workers rode all of the runs on all three of the routes, noting how many passengers boarded and alighted at each of the named stops, as well at flag stops. These data are presented below.

### ***Main Route***

Graham Transit's Main Route experienced the highest ridership on the day of the counts, recording 83 passenger boardings. With 10.5 revenue hours provided, this level of ridership equates to 7.9 passenger trips per revenue hour, the highest productivity of the three routes.

Figure 3-2 provides a map of the Main Route, depicting ridership by stop. As the map indicates, the Ridgeview Plaza Walmart and the Crescent View Apartment complex were the busiest stops, each recording over 20 boardings, followed by Graham Manor, Bluefield Transit, the Treasury Office, College Plaza, and Food City.

Over the course of the day there were two ridership peaks. These were at mid-day and at mid-afternoon. Ridership by time of day is shown in Figure 3-3.

Table 3-2: Selected Peer Comparison

System	Service Area Population	Number of Vehicles	Annual Passenger Trips	Total Operating Expenses	Vehicle Revenue Hours	Vehicle Revenue Miles
Blackstone Area Bus	6,000	8	17,744	\$ 131,143	4,440	21,292
Pulaski Area Transit	49,000	9	55,384	\$ 290,539	8,060	89,175
Virginia Regional- Fauquier/Warrenton	20,000	2	30,498	\$ 309,925	6,856	149,714
Virginia Regional- Town of Orange	20,000	2	28,310	\$ 240,499	4,309	60,541
Virginia Regional- Town of Purcellville	20,000	2	18,183	\$ 219,614	3,084	71,973
<b>Graham Transit</b>	<b>6,000</b>	<b>4</b>	<b>40,754</b>	<b>\$ 210,638</b>	<b>7,240</b>	<b>132,000</b>
Mean	20,167	5	31,812	\$ 233,726	5,665	87,449

System	Trips Per Hour	Trips Per Mile	Cost Per Trip	Cost Per Hour	Cost Per Mile
Blackstone Area Bus	4.00	0.83	\$ 7.39	\$ 29.54	\$ 6.16
Pulaski Area Transit	6.87	0.62	\$ 5.25	\$ 36.05	\$ 3.26
Virginia Regional- Fauquier/Warrenton	4.45	0.20	\$ 10.16	\$ 45.20	\$ 2.07
Virginia Regional- Town of Orange	6.57	0.47	\$ 8.50	\$ 55.81	\$ 3.97
Virginia Regional- Town of Purcellville	5.90	0.25	\$ 12.08	\$ 71.21	\$ 3.05
<b>Graham Transit</b>	<b>5.63</b>	<b>0.31</b>	<b>\$ 5.17</b>	<b>\$ 29.09</b>	<b>\$ 1.60</b>
Mean	5.62				

Source: Virginia Transit Performance Report, 2008 Data.

Figure 3-2: Main Route Passenger Activity

3-6

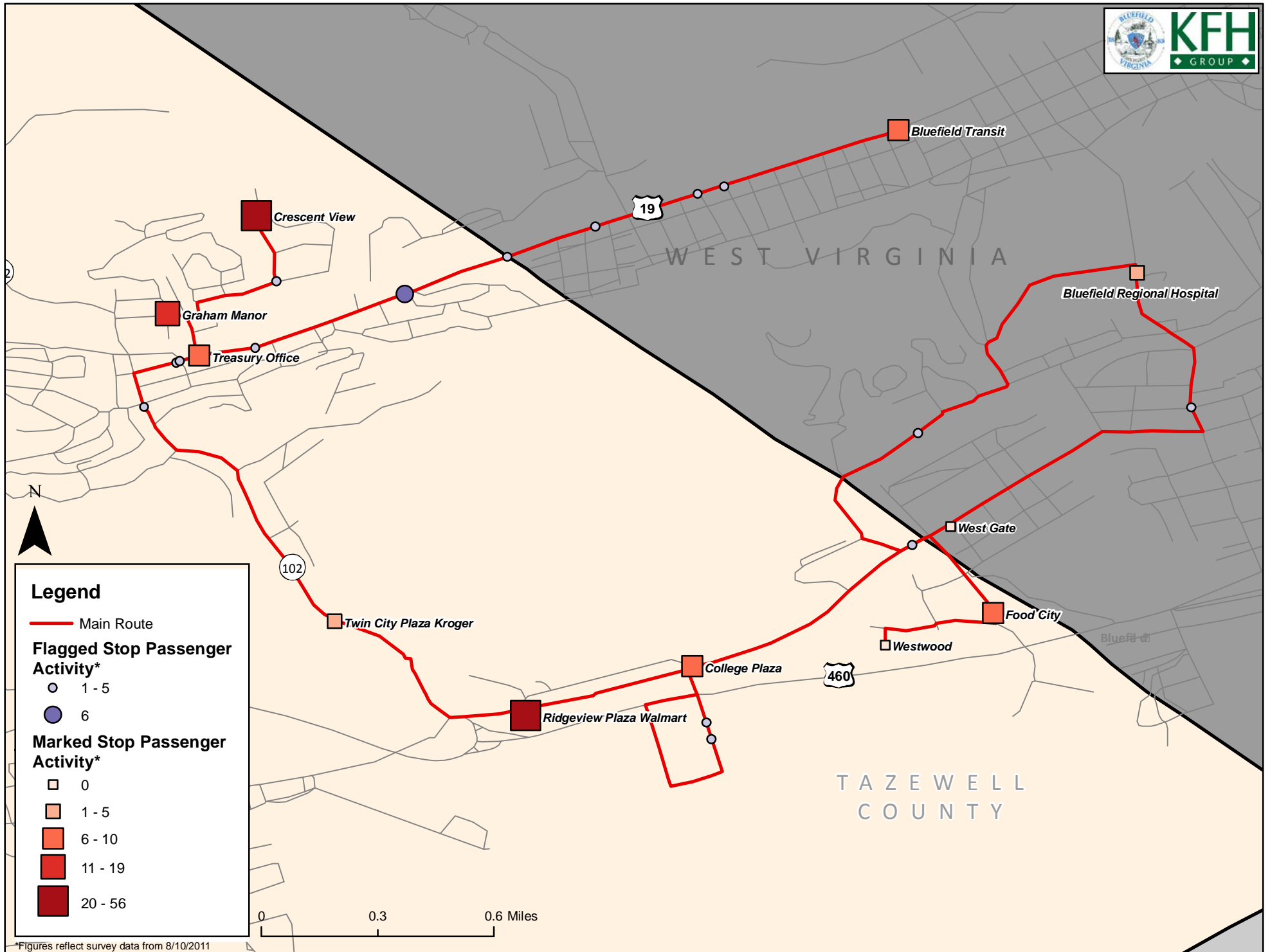
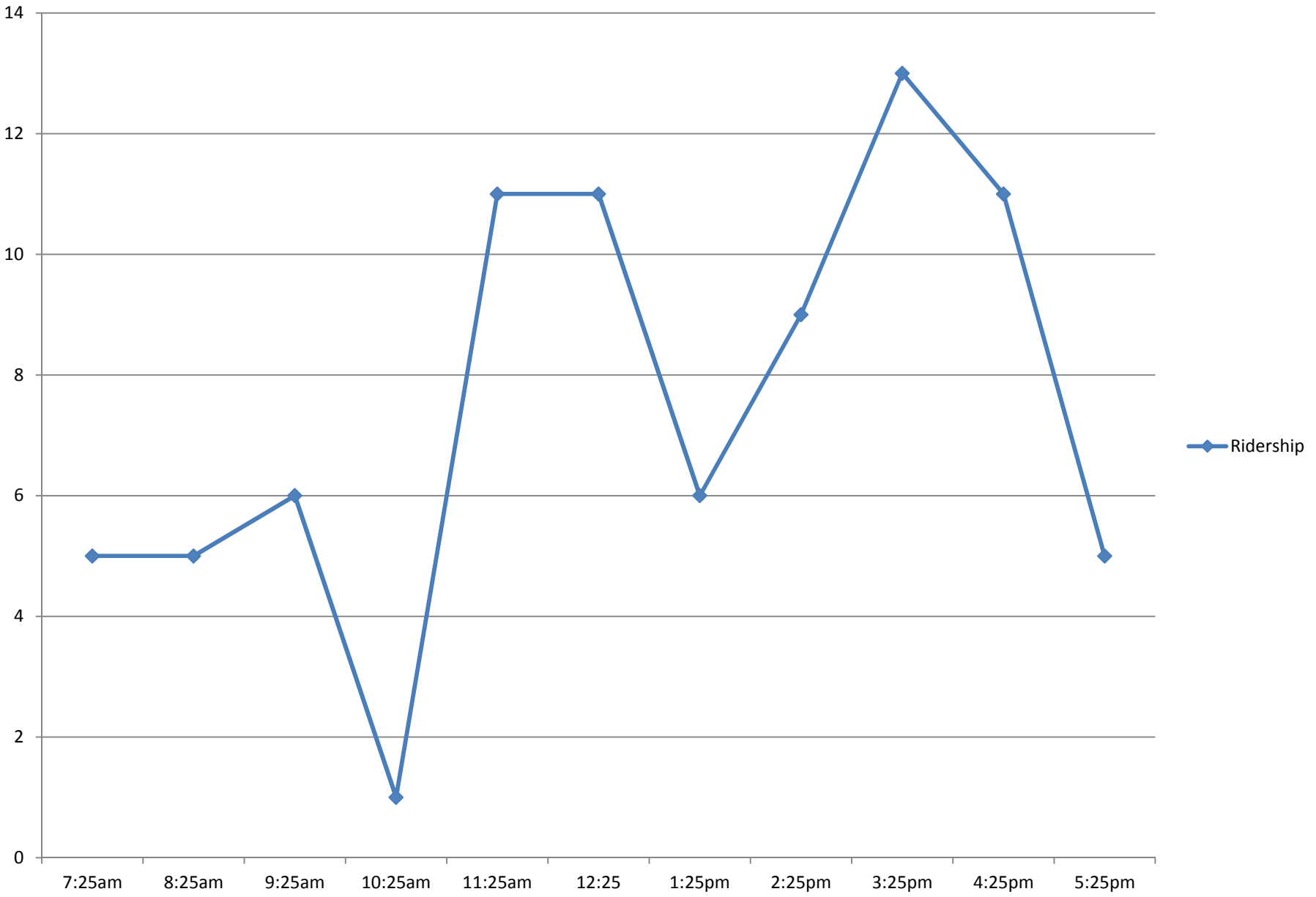


Figure 3-3: Main Route Ridership by Time of Day



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### ***Gold Route***

The Gold Route, serving a number of housing areas, experienced considerably lower ridership than the Main Route, with 31 boardings over the course of the day. With 10.5 revenue hours provided, this level of ridership equates to 2.95 passenger trips per revenue hour, which represented the lowest productivity among the three routes. This productivity figure is low for deviated fixed route service.

Figure 3-4 provides a map of the Gold Route, depicting ridership by stop. As the map indicates, the highest ridership stop was the Ridgeview Plaza Walmart, followed by West Graham.

While the overall productivity was low, there were three runs that experienced more than six boardings -- these were at 1:00 p.m., 3:00 p.m., and 5:00 p.m. Ridership by time of day is shown in Figure 3-5.

### ***Pocahontas Route***

The Pocahontas Route, the longest route among the three, experienced ridership similar to the Gold Route, with 30 boardings over the course of the day. With eight revenue hours per day, productivity on the Pocahontas Route was 3.75 trips per revenue hour.

As shown in Figure 3-6, the highest ridership stop along the Pocahontas Route was the Walmart, followed by the Indian Princess Apartments.

Ridership patterns on the Pocahontas route indicate a mid-day peak, with the highest ridership run occurring at 11:00 a.m. Figure 3-7 shows ridership by time of day for the Pocahontas Route.

### ***Overall***

There were 144 total passenger trips on the day of the boarding/alighting counts. This passenger count equates to 38,488 annual passenger trips, assuming 267 days of service (255 weekdays and 12 Saturdays). This ridership level would signify a rebound in Graham Transit ridership, almost back to the 2008 levels. Anecdotal information from the drivers indicated that this was a relatively typical day, with higher passenger loads reported at the start of the month and lighter ridership toward the end of the month. Overall productivity for the system on the day of the counts was just under five passenger trips per revenue hour.

Figure 3-4: Gold Route Passenger Activity

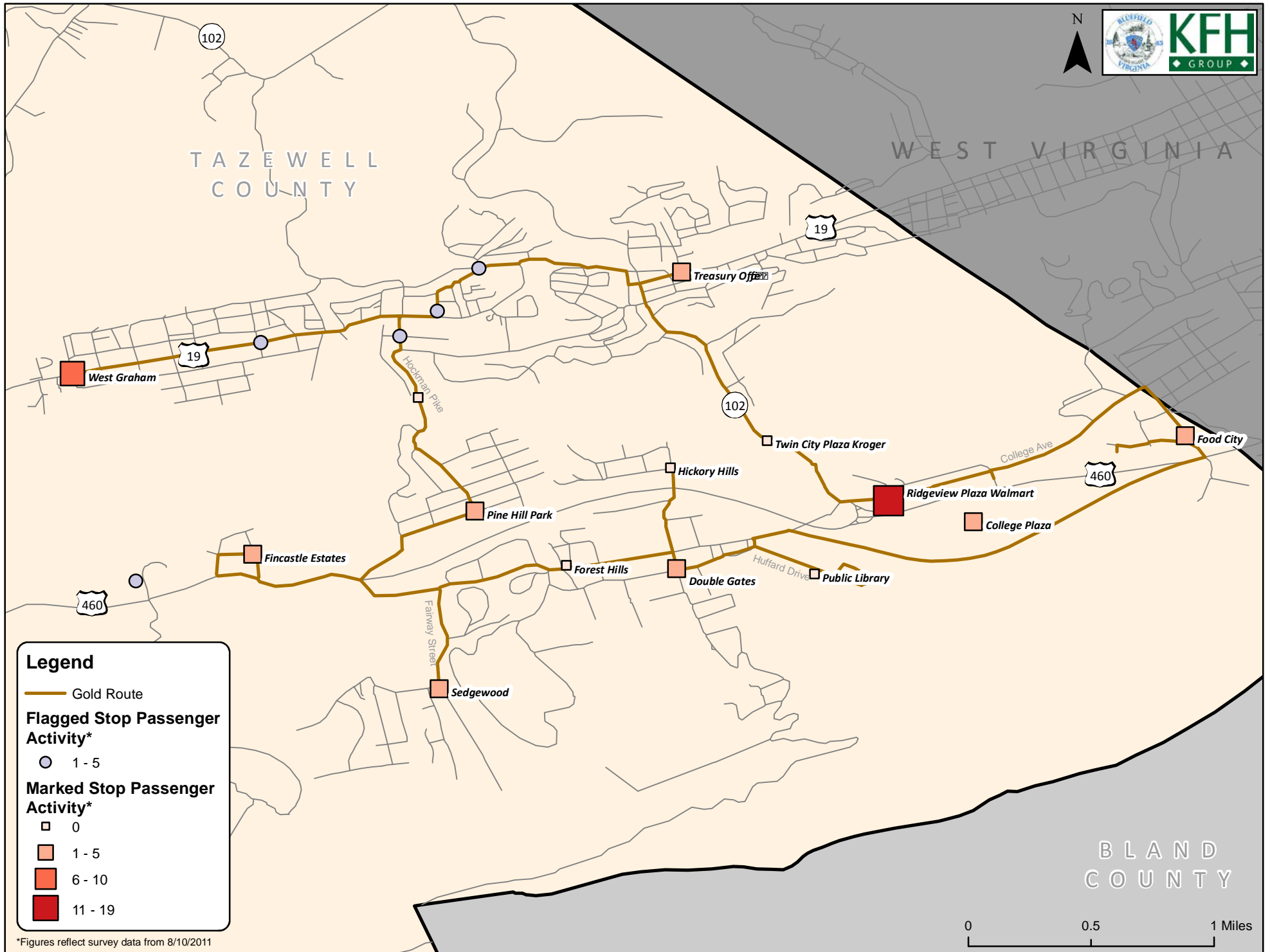


Figure 3-5: Gold Route Ridership by Time of Day

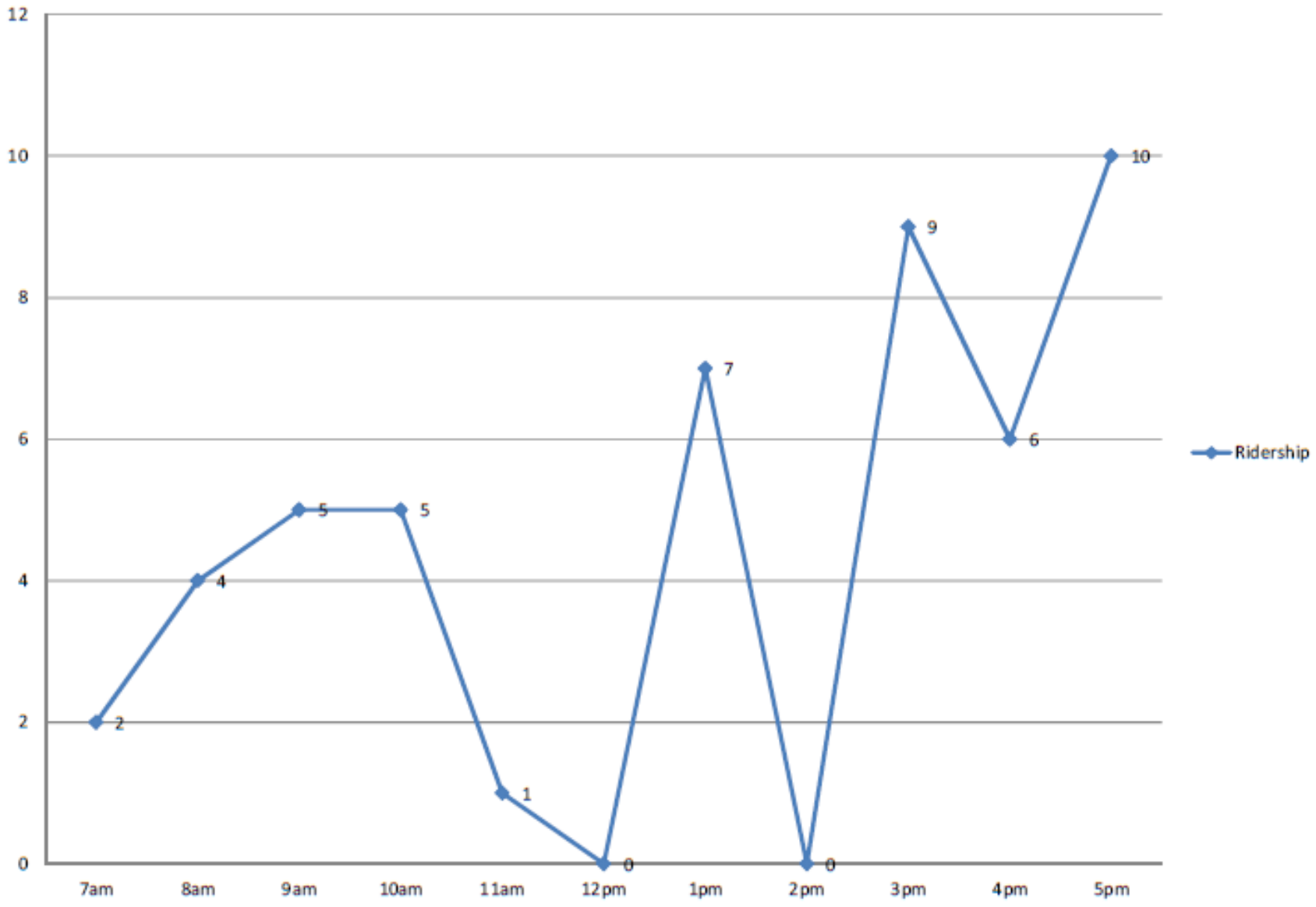


Figure 3-6: Pocahontas Route Passenger Activity

3-11

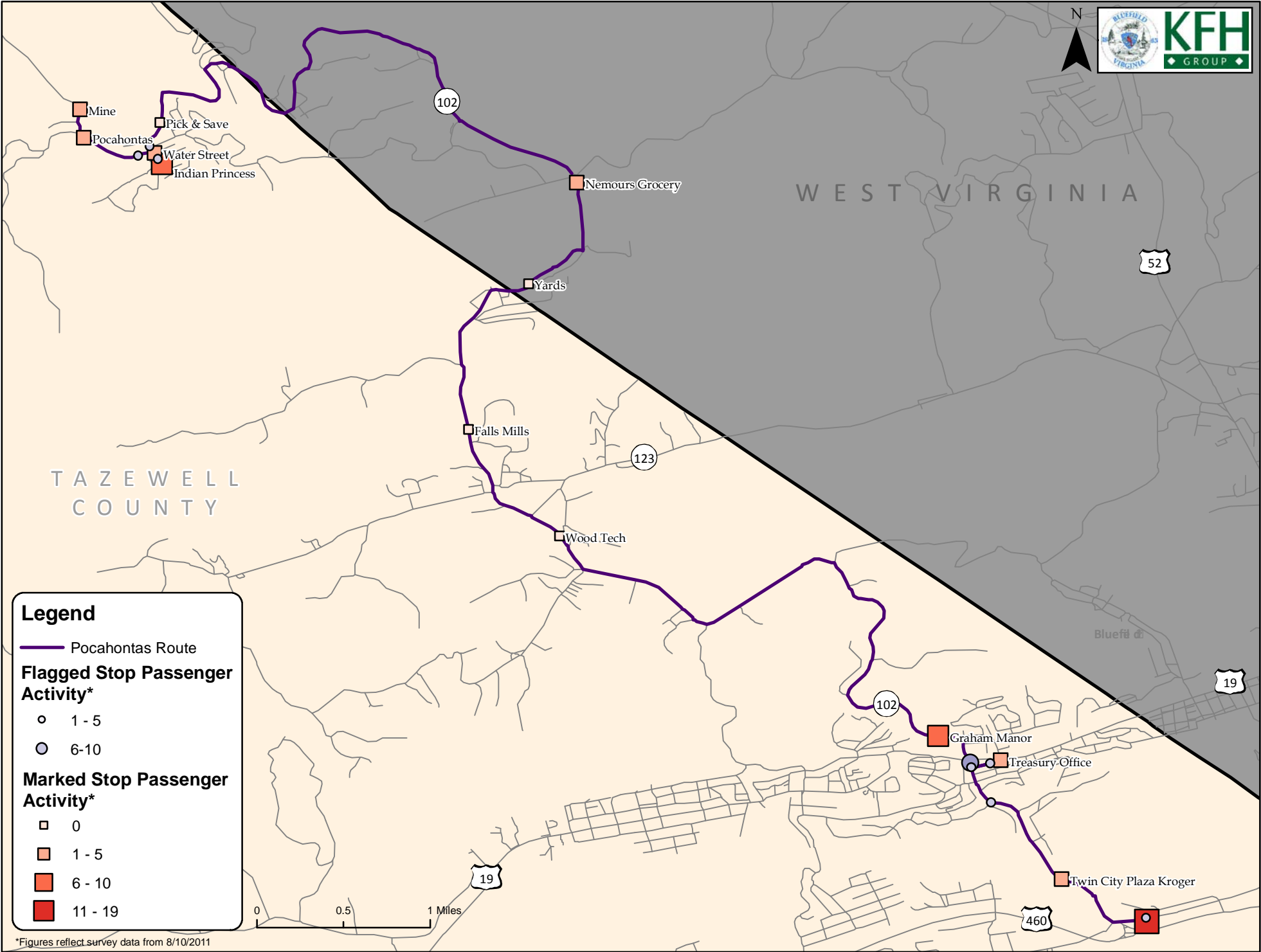
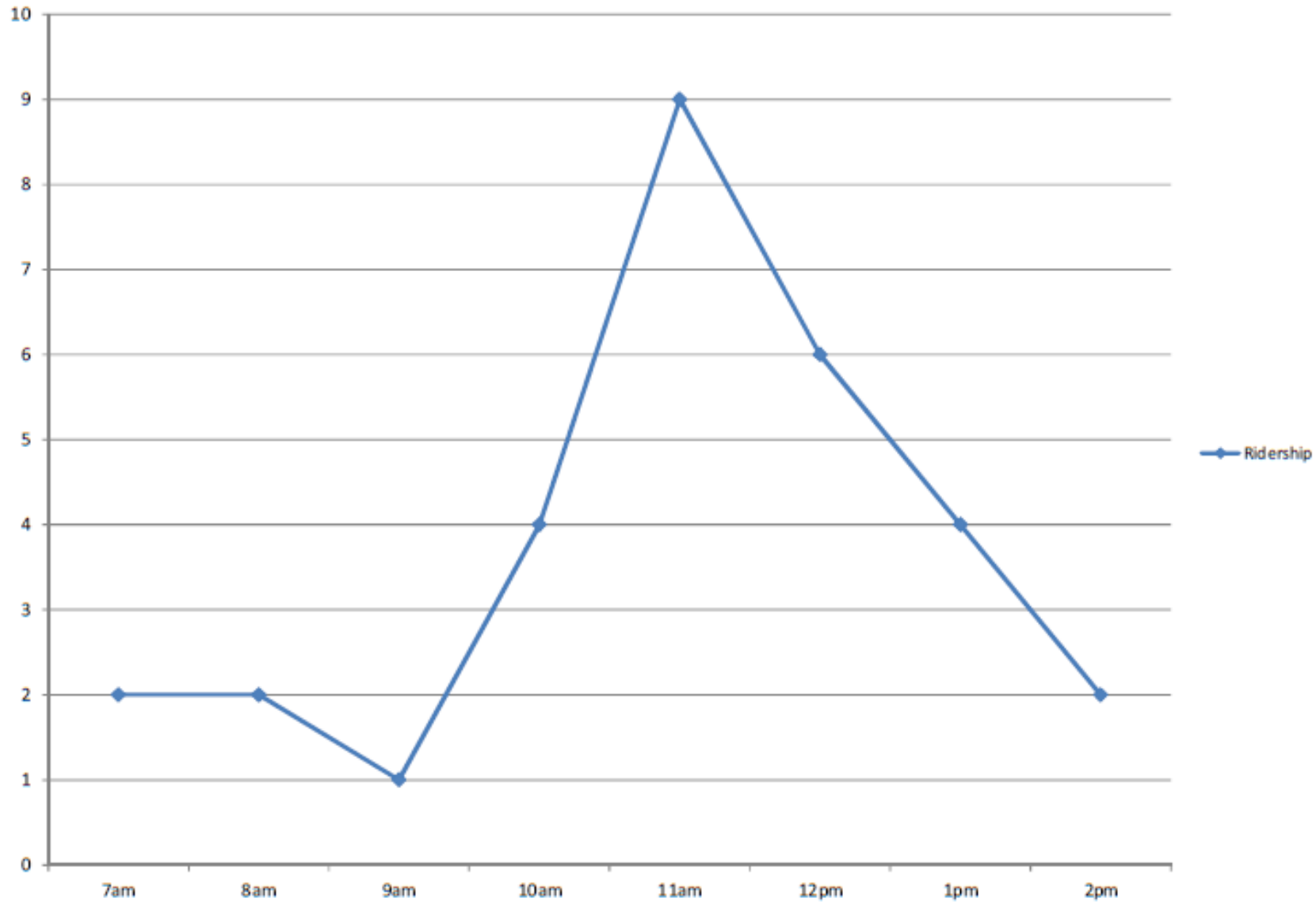


Figure 3-7: Pocahontas Route Ridership by Time of Day



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## Expenses and Revenue

In FY 2010, Graham Transit's operating budget was \$202,158 and the actual operating expenditures were \$192,156. Graham Transit's budget was higher than its expenses largely due to lower than expected fuel and parts expenses. For FY11, the budget is \$212,000.

The largest single funding source for Graham Transit is the federal Section 5311 program, followed by state funds and local funds. The FY 2011 budget is detailed in Table 3-3.

## On-Board Rider Survey

An important task within the Graham Transit TDP process was the acquisition of more information about current public transportation trip patterns, rider characteristics, rider satisfaction with the service, and suggestions for service improvements. In order to collect these data, an on-board rider survey was conducted. The surveys were administered between August 10<sup>th</sup> and August 17<sup>th</sup>, 2011. Survey participants were bus riders who completed a two-page survey, distributed and collected by temporary workers on August 10<sup>th</sup>, during their trips. Additional surveys were distributed and collected by drivers to extend the survey period longer than one day. The participants were instructed to only complete one survey. A copy of the questionnaire is provided as Appendix A. The results of the survey are described in detail in Table 3-4, offering an overview of these findings.

### *Trip Patterns of Surveyed Riders*

The Graham Transit on-board rider survey was completed by 56 passengers. The most number of surveys received were from the Main Route (39.3%), followed by the Pocahontas Route (35.7%), and the Gold Route (25%). According to the survey responses, the three most common origins for riders to board the bus were Pocahontas, Virginia Avenue, and Crescent View. The most common destination was Walmart, followed by the Bluefield Regional Hospital. Shopping was the most common trip purpose (51.8%), followed by work (33.9%), and medical (21.4%). These results are in keeping with the results concerning trip destinations.

The majority of surveyed bus riders completed their trip without having to transfer to another bus (71.4%), with 7.1% of respondents stating that they had to make two or more transfers to complete their surveyed trip. Of the 14 respondents that indicated that they transferred from one bus to another, 33.3% transferred to or from the Main Route and 28.6% transferred to or from the Bluefield Area Transit (WV) bus system.

**Table 3-3: Graham Transit, FY 2011 Budget**

<b>Number</b>	<b>Description of Account</b>	<b>Budgeted Amount</b>
2110	Salaries and Wages	\$111,000
2120	Fringe Benefits	\$35,000
2130	Education and Training	\$0
2210	Cleaning Supplies	\$1,500
2220	Education and First Aid	\$0
2231	Motor Fuels and Lubricants	\$31,000
2232	Tires and Tubes	\$0
2233	Parts	\$11,000
2240	Office Supplies/Computer	\$2,000
2250	Data Processing Supplies	\$0
2260	Tools and Machinery	\$250
2290	Other Supplies	\$0
2310	Travel	\$4,000
2320	Communication Services	\$2,275
2330	Utilities	\$6,300
2340	Printing and Reproduction	\$200
2350	Contracted Repairs	\$0
2360	Advertising	\$5,000
2399	Drug Testing Expenses	\$575
2450	Insurance and Bonding	\$1,900
2460	Indirect Costs	\$0
2480	Professional Services	\$0
2490	Other Fixed Charges	\$0
2410	Rental Property	\$0
<b>2001</b>	<b>Total Expenses</b>	<b>\$212,000</b>
1000	Revenue	\$8,000
	ARRA Operating	\$0
	Net Deficit	\$204,000
1200	Federal Operating Exp.	\$102,000
	Non-Federal Assistance	\$102,000

**Table 3-4: Graham Transit On-Board Rider Survey Summary**

Surveying conducted from Wednesday, August 10 through Wednesday, August 17.

**Q1: What route are you currently riding?**

Main Route:	39.3%
Gold Route:	25.0%
Pocahontas Route:	35.7%

**Q2: How did you get from your starting place to the bus stop for this trip?**

Walked:	69.6%
Bicycled:	0.0%
Drove car and parked:	5.4%
Dropped off by someone:	7.1%
Other:	16.1%
No response:	1.8%

**Q3: What was the location where you boarded the bus?**

#1:	Pocahontas (10)
#2:	Virginia Avenue (7)
#3:	Crescent View (6)

**Q4: Did you or will you have to transfer buses in order to complete this trip?**

Yes, one transfer:	17.9%
Yes, two or more transfers:	7.1%
No:	71.4%
No response:	3.6%

**Q5: What bus route(s) will you transfer to or did you transfer from?\***

Main Route:	33.3%
Gold Route:	19.0%
Pocahontas Route:	23.8%
Bluefield Transit (WV):	28.6%

\*Percentages reflect that there were 14 respondents who said they transferred to at least one other route

**Q6: How will you get to your ending place from the last bus you ride for this trip?**

Walk	57.1%
Bicycle	0.0%
Drive my car:	5.4%
Picked up by someone:	1.8%
Other:	25.0%

**Q7: What is your destination?**

#1:	Wal-Mart
#2:	Bluefield Regional Hospital
#3:	Multiple locations were listed 2-3 times by respondents.

**Table 3-4: Graham Transit On-Board Rider Survey Summary**

**Q8: What is the purpose of your bus trip today?**

Work:	33.9%
Shopping:	51.8%
School:	5.4%
Social/Recreation:	10.7%
Medical:	21.4%
Government Service Agency:	1.8%
Other:	14.3%

**Q9: If Graham Transit were to make service improvements, what would be your top three choices?**

#1:	Extended service hours, especially in evenings
#2:	Extend days of service for Pocahontas Route
#3:	Provide weekend service

**Q10: If Graham Transit were to serve additional neighborhoods or geographic areas, what would be your top three choices?**

#1:	Boussevain
#2:	Bluefield, West Virginia
#3:	Abbs Valley
#4:	Grant's

**Q11: Please rate your satisfaction with Graham Transit services in the following areas:**

	<b>Very satisfied:</b>	<b>Satisfied:</b>	<b>Un-satisfied:</b>	<b>Very un-satisfied:</b>	<b>No response:</b>
On-time performance:	67.9%	26.8%	1.8%	1.8%	1.8%
Convenience of bus routes:	64.3%	25.0%	7.1%	1.8%	1.8%
Convenience of bus stop locations:	66.1%	26.8%	1.8%	1.8%	3.6%
Days of service:	32.1%	30.4%	26.8%	5.4%	5.4%
Hours of service:	33.9%	41.1%	17.9%	3.6%	3.6%
Frequency of service:	51.8%	35.7%	7.1%	3.6%	1.8%
Cost of bus fare:	83.9%	14.3%	0.0%	1.8%	0.0%
Cleanliness of the buses:	75.0%	21.4%	0.0%	1.8%	1.8%
Driver Courtesy:	82.1%	16.1%	0.0%	1.8%	0.0%
Availability of information:	76.8%	19.6%	0.0%	1.8%	1.8%
Safety and security:	69.6%	26.8%	0.0%	1.8%	1.8%
Telephone customer service:	48.2%	33.9%	8.9%	3.6%	5.4%
Usefulness of Transit website:	39.3%	41.1%	3.6%	1.8%	14.3%

**Q12: In what city, town, or community do you live?**

#1:	Bluefield
#2:	Pocahontas
#3:	Falls Mills
#4:	Boissevain
#5:	Abb's Valley
#6:	Bluestone

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**Table 3-4: Graham Transit On-Board Rider Survey Summary**

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**Q13: How would you classify yourself?**

African American:	26.8%
Asian American:	0.0%
Caucasian:	60.7%
Hispanic/Latino:	1.8%
Native American:	3.6%
Other:	3.6%
No response:	3.6%

**Q14: Are you . . .**

Male:	39.3%
Female:	58.9%
No response:	1.8%

**Q15: Do you have a driver's license?**

Yes:	26.8%
No:	42.9%
No response:	30.4%

**Q16: How many vehicles (cars, trucks, motorcycles) are available in the household where you live?**

0:	64.3%
1:	25.0%
2:	5.4%
3:	0.0%
4 or more:	1.8%
No response:	3.6%

**Q17: Please indicate your age group:**

Under 12 years old:	1.8%
12-17:	1.8%
18-25:	14.3%
25-55:	55.4%
56-64:	16.1%
65 years or older:	10.7%
No response:	1.8%

**Q18: Which of the following best describes your current employment status?**

Employed, full-time:	19.6%
Employed, part-time:	19.6%
Retired:	14.3%
Student, full-time:	10.7%
Student, part-time:	0.0%
Homemaker:	10.7%
Unemployed:	14.3%
Other:	19.6%
No response:	1.8%

**Table 3-4: Graham Transit On-Board Rider Survey Summary**

**Q19: What is your annual household income level?**

\$14,999 or less:	69.6%
\$15,000 - \$29,999:	16.1%
\$30,000 - \$44,999:	1.8%
\$45,000 - \$59,999:	0.0%
\$60,000 - \$74,999:	0.0%
\$75,000 or higher:	0.0%
No response:	12.5%

**Q20: Please provide any comments you may have concerning public transportation in the Town of Bluefield, Tazewell County, or the broader region.**

Keep Pocahontas Route  
Keep the bus  
We need to keep our transportation going so we can get to work  
Graham Transit is the best thing that has happened in Bluefield, VA in the past 50 years  
Service needs to be everyday  
Please try to run the bus more often and longer hours  
Please try to run the bus more often, and longer hours on the Pocahontas  
I am a single mother with 2 children and I have to hitchhike to Pocahontas to catch bus or  
hitchhike to Bluefield on the off days of Pocahontas Route  
Very good service. We are blessed. It's a help to a lot of people in community.  
Can't use current schedule for work. Need signs and maps on buses. Extended hours.  
The bus drivers are very nice.  
Bus drivers are great and go out of their way.  
I'm so glad buses run. It helps a lot of people get things done. I'm very thankful.  
Very pleased and thankful for the services  
This is awesome. I would not change it. I love it.  
The town needs a dispatcher only for buses. Make the two front seats for handicap and  
blind people. Make people do the rules. Need a radio for West Virginia and transfer bus  
from Tazewell. I think bus service is good and gold route is very helpful.  
Make riders pay.  
Dispatcher shouldn't have to go to stops without calling in first so that it will save fuel.  
Be more helpful and take us up our hill to our house  
It's awesome. The drivers are nice and on time.  
Increase bus fare. Some people don't pay, but I don't want to start a fight.  
Run bus on weekdends and until 10 PM  
They are doing a good job.  
Good to go.

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### ***Rider Characteristics***

Nearly three-fifths (58.89%) of the individuals who responded to the on-board rider survey were female, with an additional 1.8% of those surveyed offering no response to the question concerning gender. Additionally, most survey respondents (60.7%) classified themselves as being Caucasian, while 26.8% of riders were African American. The most common age bracket of riders who were surveyed was the 25-55 years of age (55.4%) grouping. Just over 39% of survey participants described themselves as being either part-time or full-time employees. Moreover, 69.6% of riders listed their annual household income as being below \$15,000, while another 12.5% chose not to respond to this question.

Just fewer than 27% of the survey respondents indicated that they had a driver's license. Automobile availability varied among surveyed riders, with 64.3% of respondents stating there was no vehicle at their house, 25% having potential access to a single vehicle, and 7.2% of riders having two or more automobiles available to their household.

### ***Rider Satisfaction***

The overall rating of satisfaction with Graham Transit services described by survey respondents was satisfactory or above, with minimal respondents expressing any deep dissatisfaction with the service. Riders were most satisfied with the cost of the bus fare and the driver courtesy, with the "very satisfied" and "satisfied" scores totaling 98.2% for both of these factors. Riders were also pleased with the cleanliness of the vehicles and the availability of information, with the "very satisfied" and "satisfied" scores totaling 96.4% for both of these factors.

The days of service received the lowest satisfaction score, with only 62.5% of the respondents indicating that they were either "very satisfied" or "satisfied" with this factor. The hours of service received the second lowest satisfaction score, with 74% indicating that they were either "very satisfied" or "satisfied" with this factor.

### ***Service Improvements Proposed by Surveyed Riders***

Two open-ended questions within the survey sought to determine areas in which riders believed Graham Transit may improve their service and expand their service area. The qualitative responses of these questions were collected and then grouped into similar themes. The top three themes to arise from the analysis of potential service advances were the suggestion to extend service hours, extend the days of service, and provide weekend service, which were signaled as the top two areas of minor dissatisfaction in the service satisfaction ratings.

The second semi-structured question asked survey participants to offer locations that they would like to have Graham Transit additionally serve. The top location to arise from the survey response was Boissevain, followed by Bluefield (WV), Abb's Valley, and Grant's. Boissevain and Abb's Valley are located southwest of Pocahontas along State Route 644.

## **Title VI and Federal Transit Administration (FTA) Triennial Review**

While the Town of Bluefield is required to follow all applicable FTA guidance with regard to regulatory compliance, as a subrecipient of federal funds through the Virginia Department of Rail and Public Transportation (DRPT), the Town is not required to directly report compliance activities to the FTA. DRPT is charged with ensuring that its subrecipients are in compliance with federal guidance and prepares statewide reports on behalf of its rural transit providers and submits these reports to the FTA.

## **Equipment and Facility Review**

The Graham Transit fleet and facility are in good condition with no major deficiencies. The study team has identified a need for vehicle head signs and on-board cameras, and these are addressed in the plan.

## **TRANSIT NEEDS ANALYSIS**

The focus of this transit needs assessment is to analyze quantitative land use and population data, along with qualitative data provided by area stakeholders and the public, to develop a solid understanding of the travel needs of the diverse group of current and potential riders. This needs assessment incorporates information gathered from recent planning efforts, the U.S. Census and interviews with local stakeholders.

### **Review of Recent Plans**

This section of the needs analysis includes an overview of existing planning documents and studies that have been recently completed for the Town of Bluefield and/or regional bodies. The plans and studies included those specific to public transportation, as well as those addressing more expansive land use and growth visions for the region. How these plans and studies articulate the issue of public transportation in the Town and surrounding region is abstracted below.

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### *Town of Bluefield 2005 Comprehensive Plan*

The Town of Bluefield completed a Comprehensive Plan in 2005. The Town's stated goal for transportation is "To provide an integrated, multi-modal transportation system that is safe, economical, ecologically sound, and aesthetically pleasing, serving an extensive area, and diverse population, including the physically challenged."<sup>1</sup> While this is a stated Town Goal, the stated goal for transportation in the Comprehensive Plan is, "To have a transportation system that allows people and goods to pass through the community in the safest way possible."<sup>2</sup>

Although the Town's goal mentions the word "multi-modal," only roadway projects are highlighted in the transportation section. The only reference to public transportation is made when describing the Town's facilities, including the public transit garage.

In terms of population growth the Plan contemplates that the community is aging and the population trend is generally declining (though, as previously noted in Chapter 1 the population increased between 2000 and 2010). The Plan indicates that growth in the community could occur through annexation and/or through the full development of a large parcel of land in the south eastern portion of the town, across U.S. Route 460. This property, the "Leatherwood" property, is the largest parcel of land in the Town that is currently undeveloped. This 1,100 acre property does have a master plan on file that includes the following elements:

- 485.5 acres of open space
- 155.5 acres of commercial development
- 88.1 acres of light-medium commercial office/retail
- 58.6 acres of multi-family dwellings
- 29.2 acres for retirement housing facilities
- 208.2 acres for single family residences.<sup>3</sup>

This property is cited in the Plan as the area where population growth could occur in the Town. This property is shown in Figure 3-8.

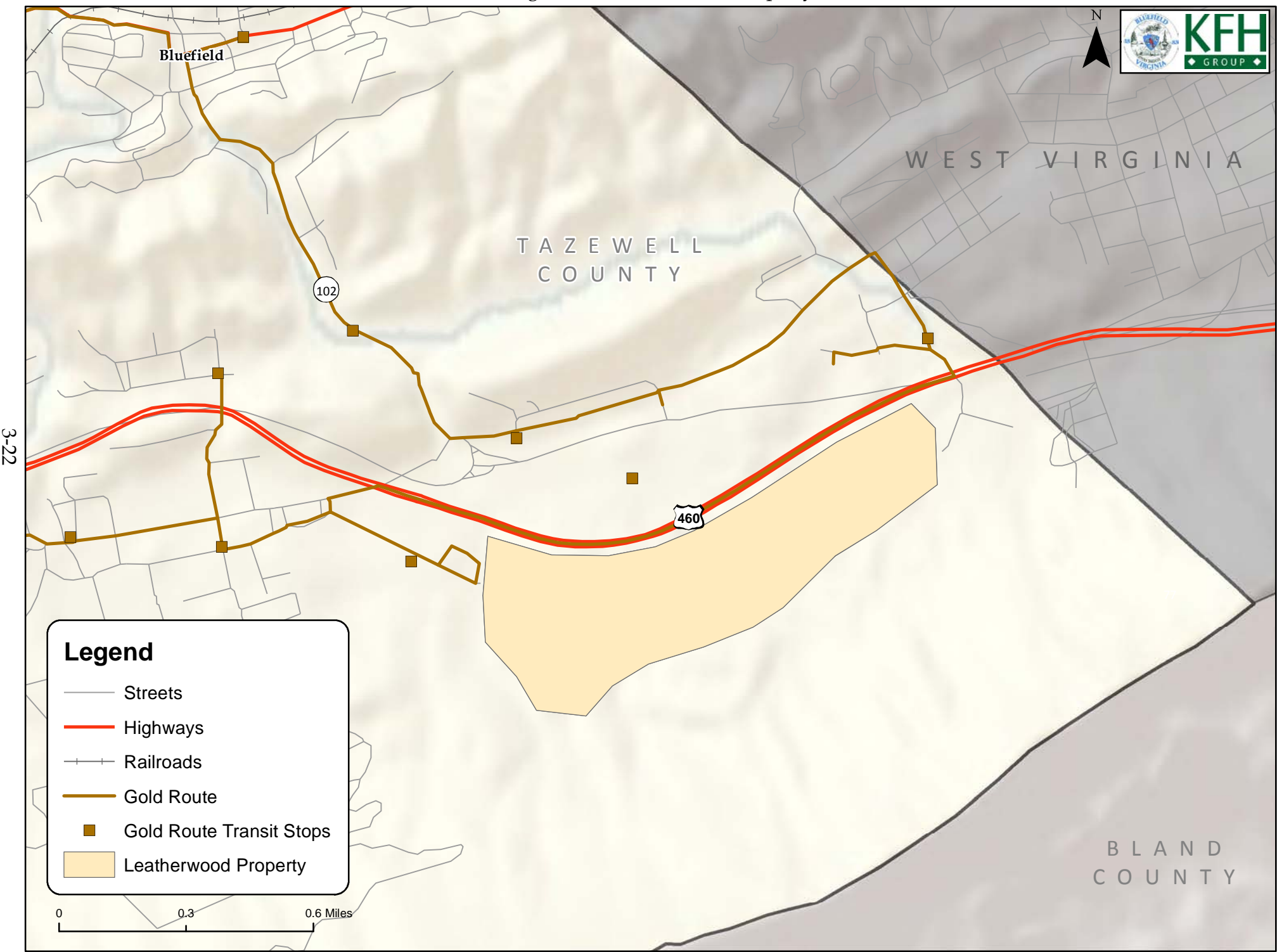
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<sup>1</sup> Town of Bluefield, 2005 Comprehensive Plan.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

Figure 3-8: Leatherwood Property



### ***Four County Transit, Transit Development Plan, Fiscal Years 2010-2015***

In October, 2009, Four County Transit completed their six-year TDP, following DRPT's scope of work for the plan, which is similar to the process currently being undertaken for Graham Transit. There were three proposed opportunities identified for service expansion in Four County Transit's TDP. These were:

- Development of a Work Express/County Connector route from Buchanan to Tazewell County;
- Development of a County Connector route between Russell and Tazewell County connecting the towns of Lebanon and Honacker with the transit office; and
- Development of a Work Express route from Bluefield to Tazewell at the transit office.

Each of these scenarios required an increase in local funding match as well as sufficient state and federal funding. In light of the current funding situation at all levels of government, these projects were not included in the limited "constrained" portion of the plan, but rather were included in the plan as elements to be implemented should additional operating assistance become available from federal, state, or local sources. The top priority for the adopted constrained TDP is to maintain the current service levels in the near-term.

### ***Cumberland Plateau Coordinated Human Service Mobility Plan***

In response to the coordinated planning requirements of the SAFETEA-LU legislation, the VDRPT sponsored the development of a Coordinated Human Service Mobility Plan. The coordinated plan was designed to guide funding decisions for three specific grant programs: Section 5316 (Job Access and Reverse Commute - JARC), Section 5317 (New Freedom), and Section 5310 (Elderly Individuals and Individuals with Disabilities.) A plan was developed for each of the Planning District Commission regions of the Commonwealth. Graham Transit is part of the Cumberland Plateau Region (Planning District Commission 2), which includes Buchanan, Dickenson, Russell and Tazewell Counties.

An important part of the coordinated planning process was to conduct an assessment of the transportation needs for individuals with disabilities, older adults,

and people with low incomes. The following unmet transit needs were identified in the Coordinated Plan:<sup>4</sup>

- Lack of Availability - More extensive service in the evenings, weekends, and additional medical trips for those who are not Medicaid-eligible.
- Lack of Awareness of Available Services - Better information about transit services and programs, and how to access transit or paratransit programs.
- Affordability - Cost of transportation (both for public transportation and social service agency transportation).

More specific needs included the following:

*Trip Purpose*

- Local and long distance transportation for non-emergency medical trips for people not eligible for Medicaid.
- Expanded access to specialized services, i.e., one-on-one trips and door-through-door assistance.
- Rideshare options and vanpools to enable people with low incomes to access employment opportunities.

*Time*

- Expanded transportation options on evening and weekends.
- Expanded same-day transportation service for people with disabilities.

*Place/Destination*

- Transportation to clinics and regional medical facilities in Roanoke, Bristol, Charlottesville, Johnson City (TN), and Winston-Salem (NC).
- Expanded public transportation out of the region.
- Expanded inter-system connections to access more destinations in the region.
- Transportation to places of worship.

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<sup>4</sup> Cumberland Plateau Coordinated Human Service Mobility Plan, June 2008, prepared by Cambridge Systematics and KFH Group for the Virginia Department of Rail and Public Transportation.

### *Information/Outreach*

- Mobility Manager to contact various agencies, providers, and customers, especially to coordinate occasional weekend/evening service or service to special events.
- Information to taxi companies about funding, leasing, and coordinating opportunities.
- Branding to let customers know services are open to the public, i.e., routes that serve community colleges.
- Coordinated marketing of services.
- Greater education for elected officials on community transportation benefits and need for local funding to support services.

### *Travel Training/Orientation*

- Train groups to ride public transportation to expand people riding public transportation.
- Have an attendant or aide on vehicle as needed.

### *Other*

- Expanded access to accessible vehicles.
- Reduced restrictions on use of State funds for transportation.
- Designated regional coordinator for transportation; state level funding source to support this service.
- Expanded taxi service, especially accessible taxi service, by exploring partnerships between private taxi companies and local transportation providers; and by examining state regulatory barriers such as insurance.
- Funding to expand or establish volunteer driver programs.
- Expanded local match money for federal and state funding.
- Continuous and reliable source of funding if locality does not have funds.
- Exploration of opportunities to use other funding sources for matching requirement.
- Reduced local match for operating funding.
- Greater human service or public health focus on infrastructure, including accessibility improvements (sidewalks) and bus shelters.
- Expanded multi-modal options in a rural context, ie., bike racks on transit and accessible infrastructure.

## ***Cumberland Plateau Planning District Commission 2035 Long Range Transportation Plan***

The Cumberland Plateau's 2035 Long Range Transportation Plan is a component of VTRANS 2035, the Commonwealth's multi-modal long range transportation plan. This planning effort included an evaluation of each mode of transportation in the region, including roadway, rail, transit, air, bicycle, and pedestrian. The plan has a horizon year of 2035 and addresses the anticipated impacts of population and employment growth on the transportation system. For the transit portion of the plan, the recommendations are taken from Coordinated Human Service Mobility Plan (discussed above).

### **Demographic Analysis**

The following section provides an extensive overview of the demographic composition of the residents of Tazewell County (VA), with a focus on the Town of Bluefield. Specifically, this section of the transit needs analysis examines trends in the general population, relative concentrations of residents, two separate indices investigating potential transit dependence characteristics within the populace, and an extraction of a few of the more important characteristics associated with this greater potential need for public transportation services.

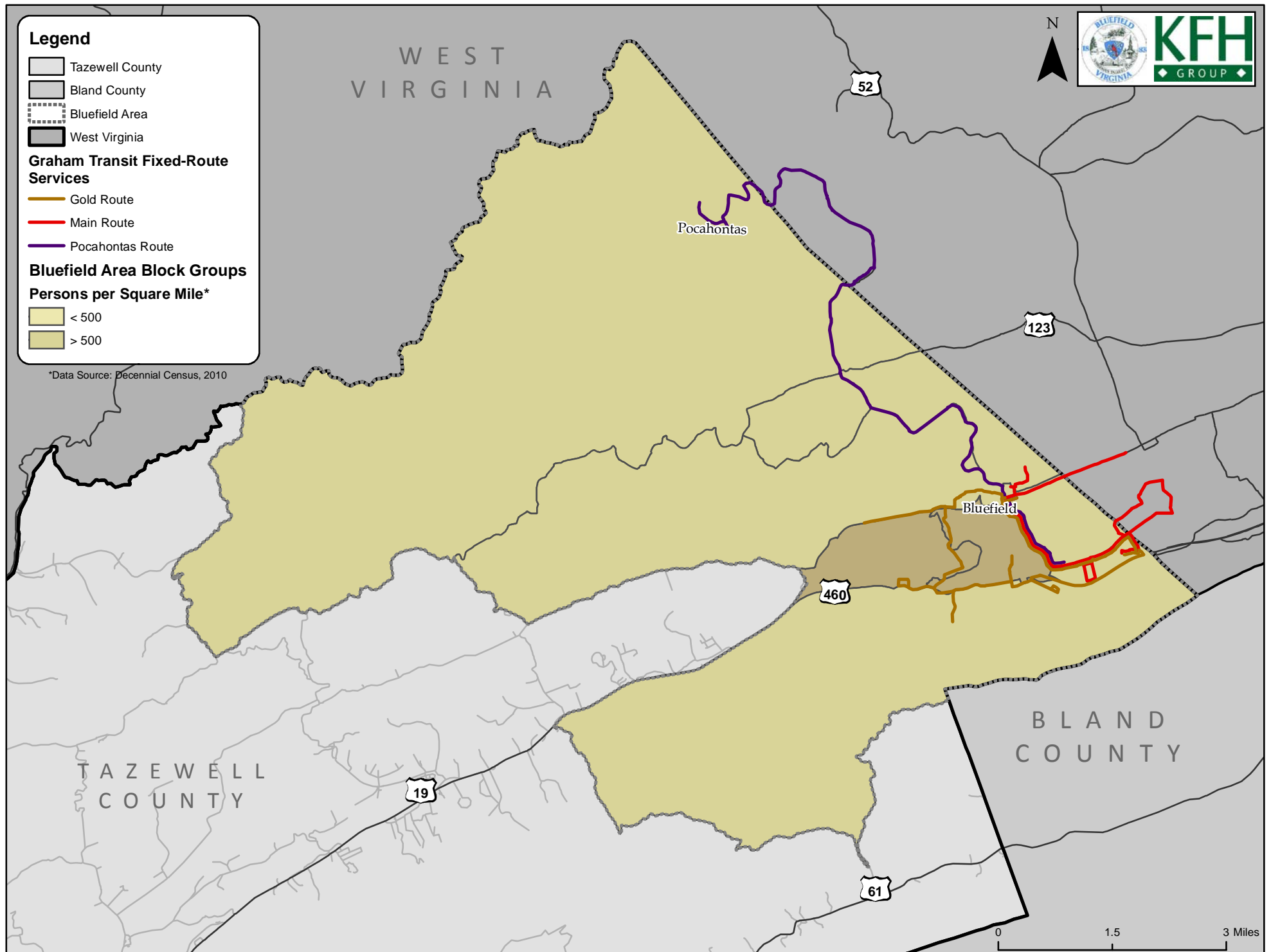
#### ***General Population***

The 2010 Census indicated that the Town of Bluefield had a population of 5,444 people, which is an increase of 7.2% over the Census 2000 population of 5,078. Bluefield had previously lost population, with the 1990 Census recording 5,363 people. The 2005-2009 American Community Survey indicated that 20.2% of Bluefield's population was aged 65 or older, which is significantly higher than the U.S. average of 12.6%.

#### ***Population Density***

Population density often serves as an effective indicator into the types of public transit services that are most feasible within a study area. For instance, while exceptions will always exist, an area with a density of 2,000 persons per square mile will generally be able to sustain a frequent, daily fixed-route bus service. Conversely, an area with a population density below this stated threshold may be better suited for a demand-response or deviated fixed-route bus service. The overall population density of Bluefield is 716 persons per square mile, which is lower than the threshold for fixed route transit service. Figure 3-9 provides a map of the study area, showing population densities by Census Block Group. These densities indicate that deviated fixed route services are an appropriate service mode for Graham Transit.

Figure 3-9: Bluefield Area Population Density



### *Transit Dependence Index*

Public transportation needs are defined in part by identifying the *relative* size and location of those segments within the general population most likely to be dependent upon some form of public transit services. Once the location of these transit dependent populations is determined and analyzed, it becomes possible to evaluate the extent to which current services meet the needs of community residents. To identify the areas of highest relative transportation need in the study area, the Transit Dependence Index (TDI) was calculated for each of the Census Block Groups in the Graham Transit study area.

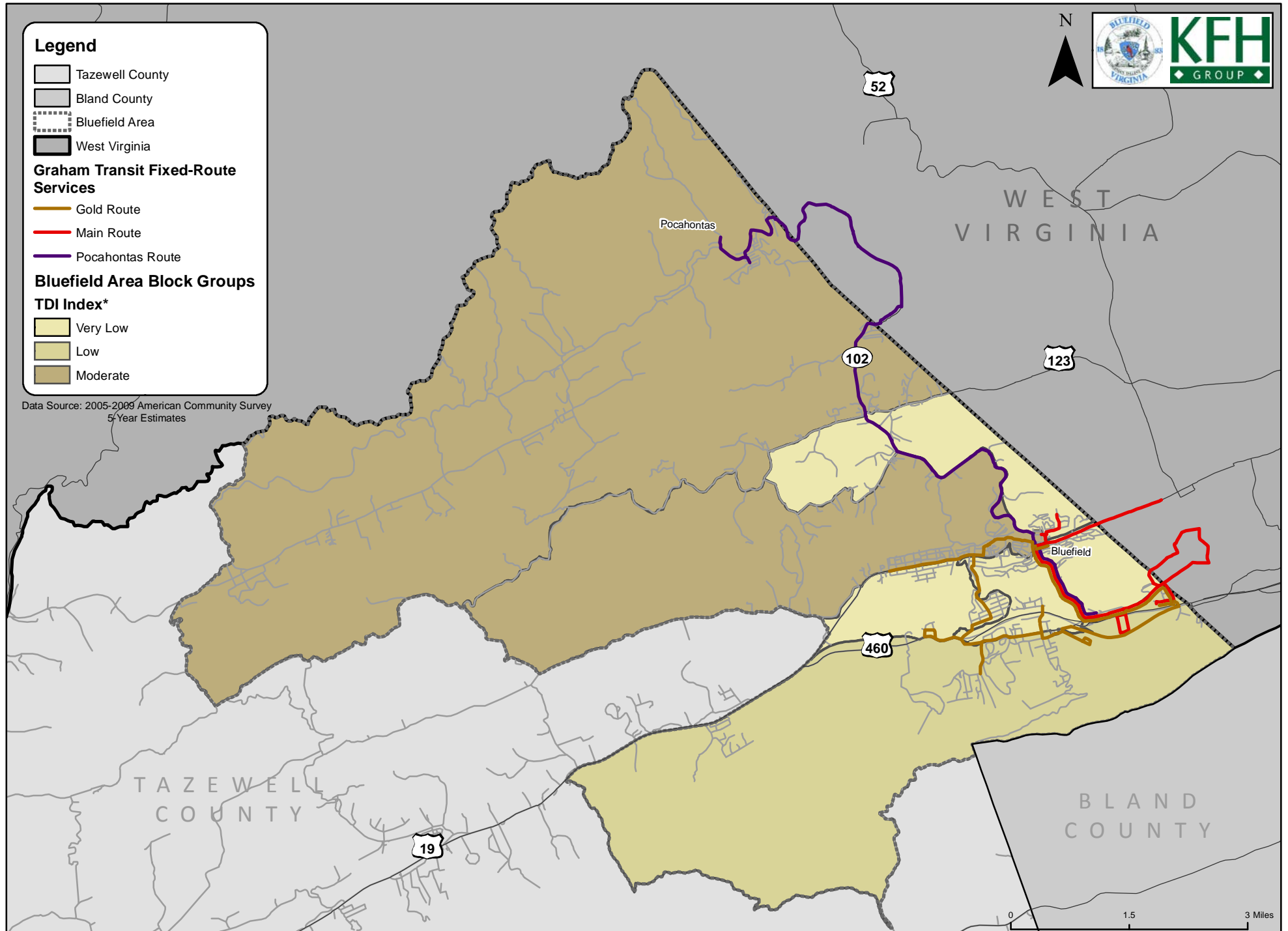
The TDI is an aggregate measure that utilizes recent data from the American Community Survey (ACS) five-year estimates and the United State Decennial Census to display relative concentrations of transit dependent populations within a study area at the Census Block Group level. These populations include the following:

- People residing in households with no vehicle available,
- Elderly Adults,
- Youth,
- People with disabilities, and
- People residing in households with incomes below the poverty level.

The TDI also includes a population density factor. A complete explanation of the methodology used to develop the TDI is provided in Appendix B. The TDI shows relative need within a study area, which means that in a relatively homogenous service area, there will not be locations that show up as high need, as the index reflects the degree to which a certain area is below or above the study area average for the various needs characteristics.

In the Graham Transit service area, West Graham and the Census Block Group containing Pocahontas show moderate need, meaning that the needs characteristics were 1.33 to 1.66 times greater than the study area average. It should be noted that the data for the ACS or the study area that includes Crescent View is somewhat suspect, as it indicates that there are only 18 people living below the poverty level in the entire block group. The Census 2000 indicated that there were 235 people living below the poverty level in this block group. Figure 3-10 provides a map of the TDI for the Graham Transit service area.

**Figure 3-10: Bluefield Area Transit Dependence Index Classification**  
**Census Block Groups Depicted by Relative Transit Need**



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### ***Transit Dependence Index Percent (TDIP)***

The TDIP analysis is similar to the TDI in that it compares the relative need for public transit among area block groups. The difference between the TDIP and the TDI, is that the TDIP does not include population density. This index is used to see if there are areas that have high relative needs based on the percentage of the population displaying needs characteristics, regardless of the population density. In the Graham Transit service area, downtown Bluefield, toward the West Virginia border was shown as having moderate needs relative to the other block group in the Bluefield area, with other areas showing low or very low needs. Figure 3-11 provides a map of the TDIP for the Graham Transit service area.

### ***Autoless Households***

Households without at least one personal automobile to their possession are more likely to depend on the mobility offered by public transportation than those households with access to an automobile. Although such no vehicle households are reflected in both the TDI and TDIP measures as a vulnerable population that should be accounted for in a needs assessment, there is added importance in displaying this segment of the population separately in an area with the rural character found throughout the Graham Transit service area, where many land uses are separated by distances too far for nonmotorized travel. Figure 3-12 provides a map displaying the relative concentration of autoless households by Census Block Group for the Graham Transit service area. This analysis shows that the northern section of service area, which includes Pocahontas, has a high relative concentration of autoless households.

### **Title VI Analysis**

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities that receive financial assistance from the federal government. As such, agencies providing federally-funded public transportation services have the responsibility to sustain and enhance the social and economic quality of life for the residents of the communities to which they serve. The following section examines the environmental justice population of the Graham Transit service area, which constitutes both racial and/or ethnic minorities and low-income residents, in addition to an overview of the magnitude of area residents that possess limited proficiency in their English-speaking ability.

### **Environmental Justice Index (EJI)**

The EJI is an aggregate measure that may be employed with mapping software to effectively display relative concentrations of racial and/or ethnic minorities and low-income residents throughout the study area. The structure for the EJI was introduced in

Figure 3-11: Bluefield Area Transit Dependent Index Percent Classification  
Census Block Groups Depicted by Relative Transit Need

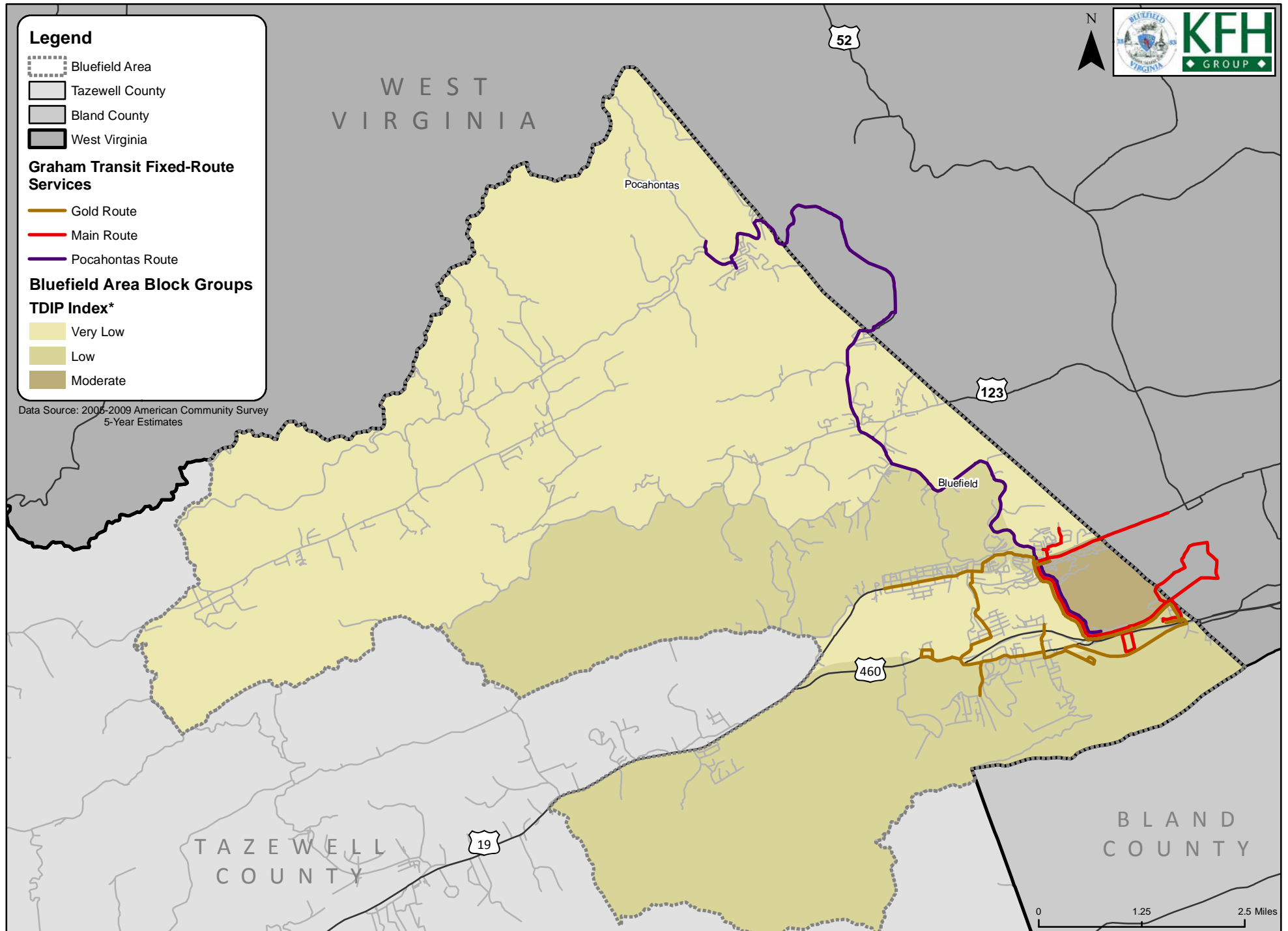
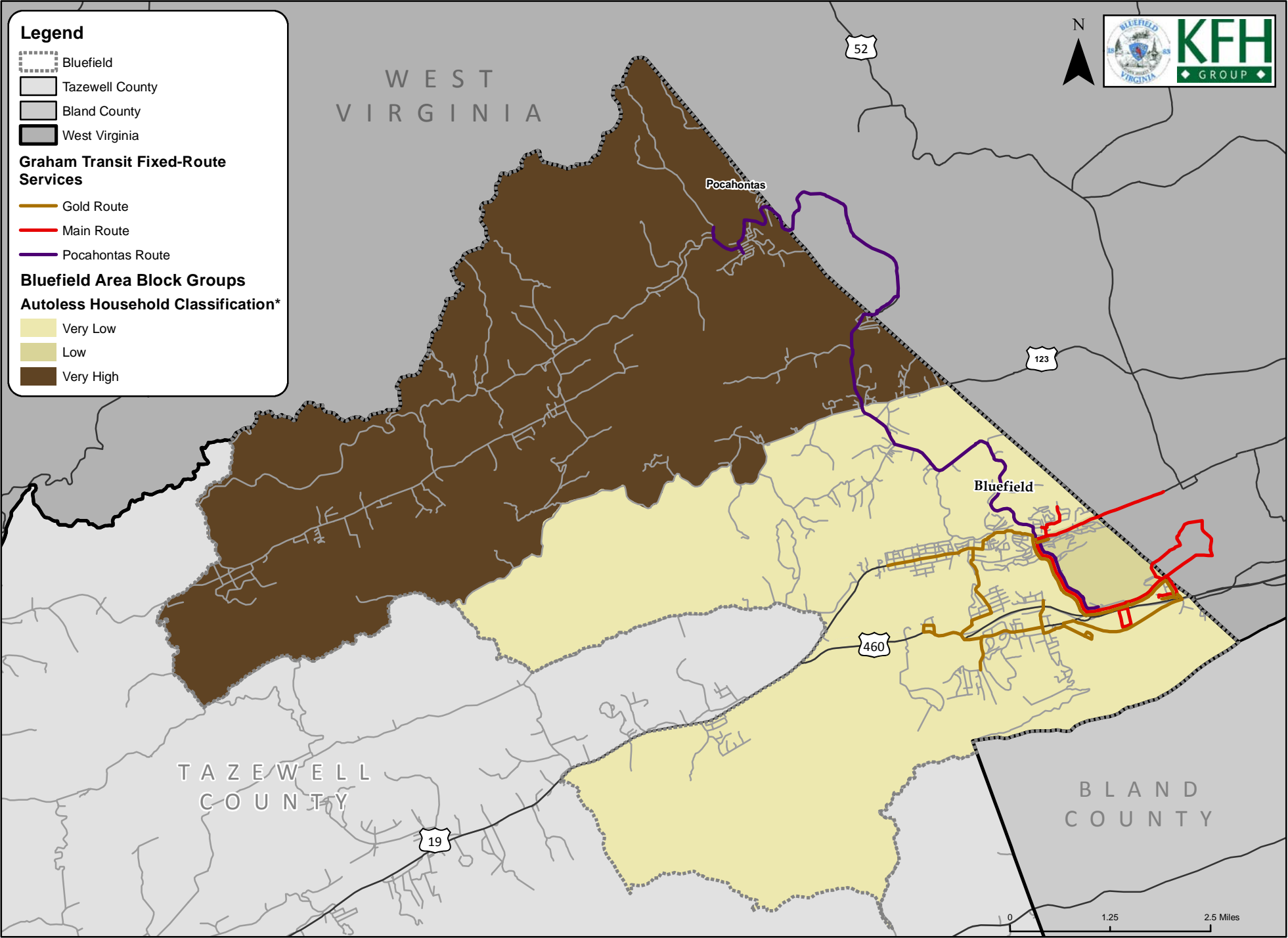


Figure 3-12: Bluefield Area Autoless Households Classification  
Census Block Groups Depicted by Relative Number of Autoless Households



a 2004 National Cooperative Highway Research Program report in order to offer “practitioners an analytical framework to facilitate comprehensive assessments of a proposed transportation project’s impacts on affected populations and communities.”<sup>5</sup> The application of the EJI within this needs assessment will ensure a high standard of social and economic equality, as outlined in Title VI of the Civil Rights Act of 1964, when evaluating potential modifications to the present public transportation services in the region.

Similar to both the TDI and TDIP, the data utilized for the EJI was compiled by the ACS’s five-year estimates, which enabled examination of socioeconomic characteristics at a block group level of analysis, and the United States Decennial Census, which provided the necessary geographic information (e.g., block group boundaries). Factors included in the EJI are:

- population per square mile
- minority population
- below-poverty population

A full discussion of the EJI methodology is provided in Appendix C.

A map of the overall EJI classification for the Graham Transit service area is shown in Figure 3-13, showing that the West Graham area shows a high relative concentration of people below poverty as well as minorities, as compared to other block groups in the study area.

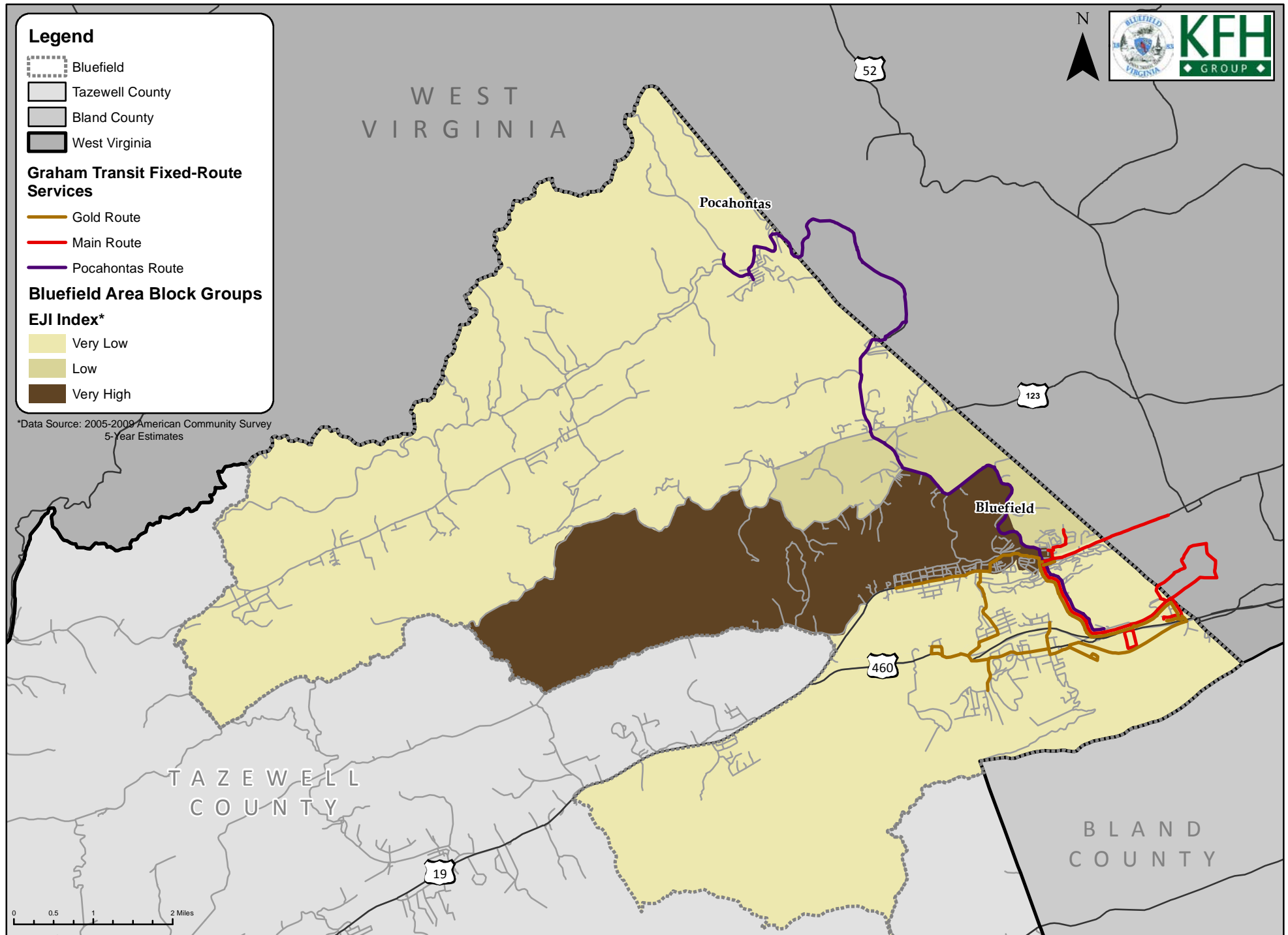
### ***Low-Income Population***

The second socioeconomic group included in the EJI are those individuals who earn less than the federal poverty level in an observed period of time. These individuals face financial hardships that make ownership and maintenance of a personal vehicle difficult and oftentimes unachievable. As such, these individuals are more likely to be dependent upon public transportation for both mandatory and discretionary trips. Therefore, it is important to ensure that these persons, like those individuals exhibiting any of the previously mentioned vulnerable characteristics, are carefully identified and protected from any injustice that may result from a potential service modification. Figure 3-14 is a map depicting the relative concentration of low-income individuals per block group throughout Graham Transit service area. Similar to the preceding minority population map, this figure utilizes the five-tiered classification

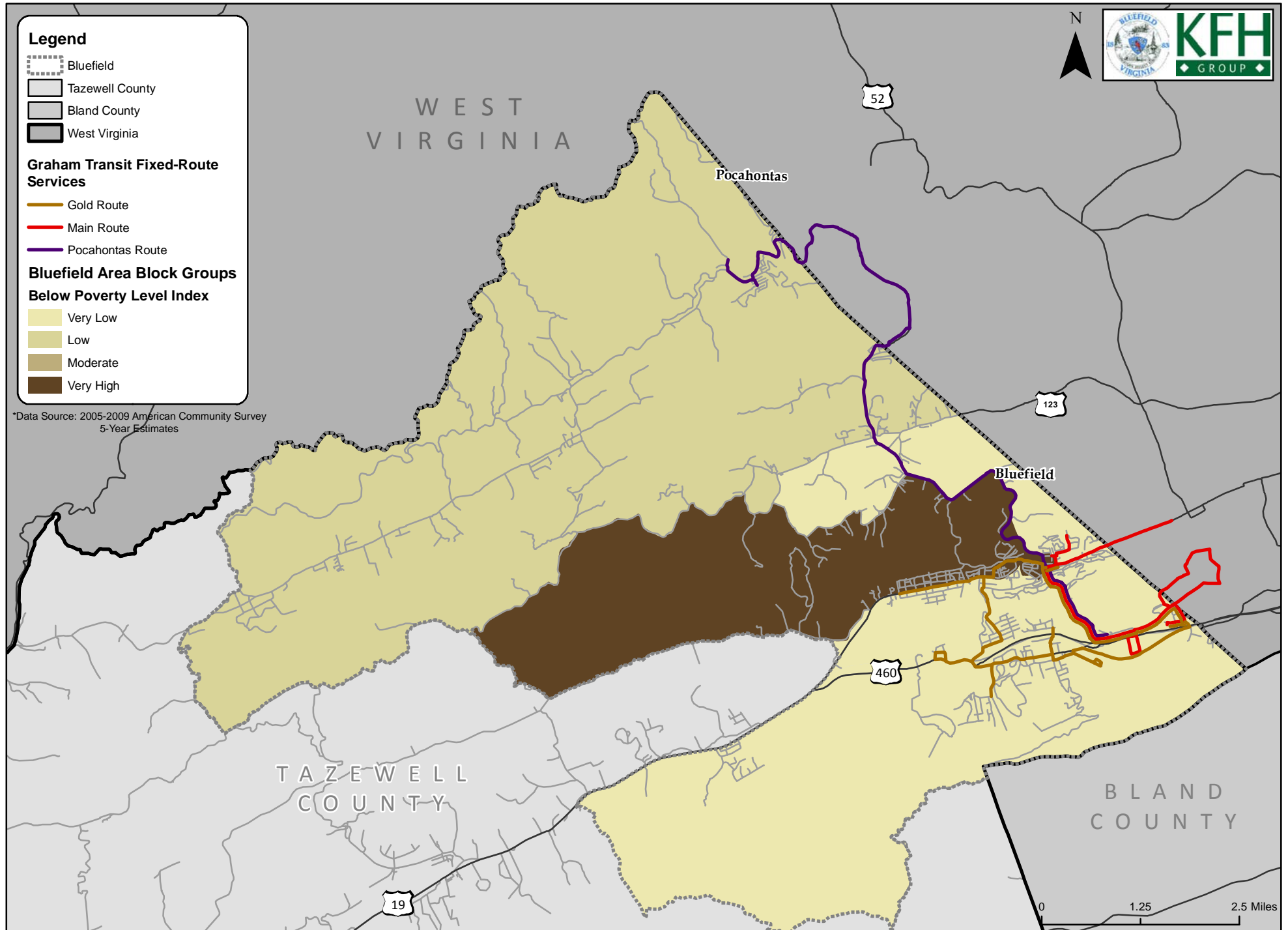
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<sup>5</sup> Forkenbrock, D. and Sheeley, J. 2004. *Effective Methods for Environmental Justice Assessment*. NCHRP Report 532. Transportation Research Board, National Research Council. Washington, DC: National Academy Press.

**Figure 3-13: Bluefield Area Environment Justice Index Classification**  
**Census Block Groups Depicted by Relative Number of Minorities and People Earning Below the Federal Poverty Level**



**Figure 3-14: Bluefield Area Residents Earning Below the Federal Poverty Level Classification**  
**Census Block Groups Depicted by Relative Number of People Earning Below the Federal Poverty Level**



scheme of very low, low, moderate, high, and very high, with the West Graham area showing a high relative concentration of persons below poverty. As previously discussed, KFH Group staff question the ACS data with regard to the block group containing Crescent View, which likely should also be represented in this category.

### ***Limited-English Proficiency***

In addition to equitably providing public transportation to individuals of diverse socioeconomic backgrounds, it is also important to realize the variety in languages spoken by area residents. Consequently, Graham Transit must determine the appropriate level to which the Town disseminates information to individuals and households with limited proficiency in English-speaking ability throughout the region. According to the ACS's five-year estimates for 2005-2009, English is the only language spoken by 97.8% of the population five years of age or older in Tazewell County.

Amongst the other languages spoken by residents of Tazewell County, none are spoken by more than 0.62% of the population. Thus, the overwhelming majority of residents in Tazewell County are either native English speakers or at ease with speaking the language.

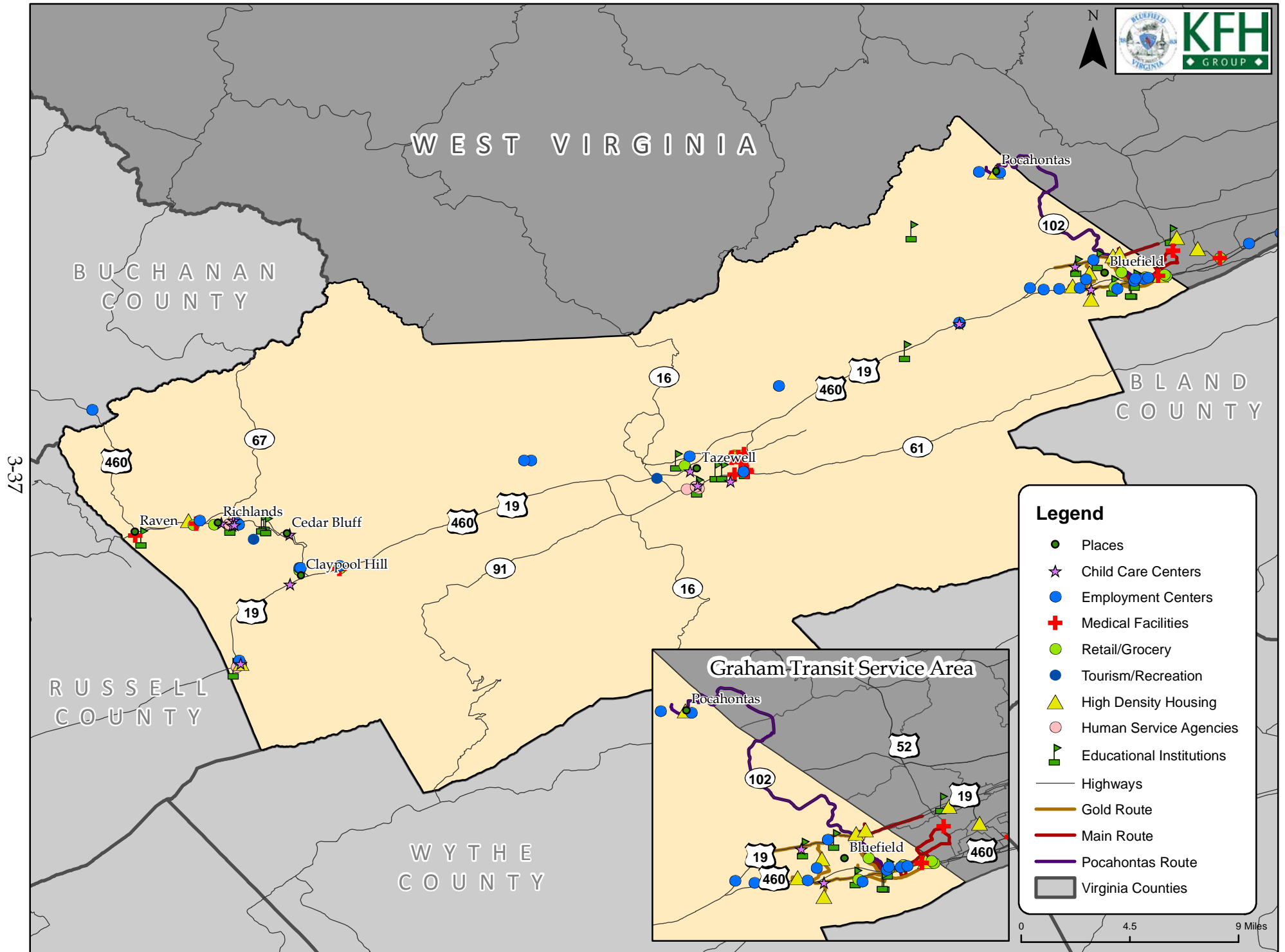
Examining the linguistic isolation among households in Tazewell County denotes a similar finding, with only 21 of the County's 18,049 households identified by the ACS as being linguistically isolated.

### **Major Trip Generators**

Major trip generators are those origins from which a concentrated transit demand is typically generated and those destinations to which both transit-dependent persons and choice riders are attracted. They include high density housing locations such as apartments and assisted living facilities, major employers, medical facilities, educational facilities, shopping malls and plazas, grocery stores, and human service agencies. Some of these trip generators, such as the Bluefield College, fall under more than one category (i.e., educational facility and major employers). The data on major trip generators were collected from local and state websites, such as the Town of Bluefield, the Virginia Department of Social Service, and the Virginia Employment Commission. Data on destinations was largely found through an online search of Superpages.com and Google Maps.

Figure 3-15 shows the locations of the major trip generators in the service area and the surrounding region. As this map indicates, the major trip generators are generally located in the three primary population centers of Tazewell County: Bluefield, Tazewell, and Cedar Bluff. There are also major trip generators in Bluefield, West

Figure 3-15: Tazewell County Major Trip Generators



Virginia. Graham Transit serves most of the Bluefield-area trip generators and Four-County Transit links Bluefield, Tazewell, and Cedar Bluff.

### *High Density Housing*

Potential trip-generating housing facilities include major apartment complexes, housing for seniors and/or persons with disabilities, nursing homes, and assisted living facilities. These types of housing facilities are typically home to people who are more likely to be transit dependent than the general population. Table 3-5 provides a list of these high density housing facilities. Graham Transit currently serves the six multi-family housing locations that are in Bluefield, Virginia.

**Table 3-5: Multi-Family Housing In Tazewell County, Virginia  
Sorted by Location**

Name	Address	City	State
Crescent View Apartments	209 Neel St	Bluefield	VA
Fincastle Estates	Fincastle & Bluestone	Bluefield	VA
Graham Manor	Thayer Street	Bluefield	VA
Maples Nursing Home	1600 Bland Street	Bluefield	WV
Mercer Nursing & Rehab Center	Rogers & Pearis	Bluefield	WV
Mobile Estates	311 Hockman Pike	Bluefield	VA
Sedgewood	Fairway & Summit	Bluefield	VA
Westwood Center	20 Westwood Medical Park	Bluefield	VA
Allcare for Seniors	216 College Ridge Road	Cedar Bluff	VA
Golden Age Retirement Home	128 Glenwood Street	Cedar Bluff	VA
Indian Princess	Central Street	Pocahontas	VA
Hill Creek Assisted Living	305 Hill Creek Road	Richlands	VA

### *Human Service Agencies*

Human service agencies provide assistance and resources to residents seeking support in a spectrum of issues including, but not limited to, senior health care, childhood development, recreation, and nutrition. The range of services offered by these agencies makes public transportation destinations. Table 3-6 provides a listing of some of the more prominent human service agencies in the service area. None of these agencies is based in Bluefield, Virginia. As such, of these agencies, Graham Transit serves only the Pocahontas Senior Citizens Center in Pocahontas. Bluefield residents can use Four-County Transit to get to Tazewell to access County-based human services.

**Table 3-6: Human Service Agencies Near Tazewell County, Virginia  
Sorted by Location**

Name	Address	City	State
CASE Nutrition Site	307 Federal Street	Bluefield	WV
Appalachian Agency for Senior Citizens	216 College Ridge Road	Cedar Bluff	VA
Cumberland Mountain Community Services	113 Cumberland Road	Cedar Bluff	VA
Cumberland Mountain Community Services	257 Cumberland Road	Cedar Bluff	VA
Generations Day Care	216 College Ridge Road	Cedar Bluff	VA
Pocahontas Senior Citizens Center		Pocahontas	VA
Clinch Valley Community Action	East Riverside Drive	Richlands	VA
Cumberland Mountain Community Services	406 Suffolk Ave	Richlands	VA
Sunrise Center	1508 Front Street	Richlands	VA
Bluestone Regional Business & Technology Center	108 East Main Street	Tazewell	VA
Cumberland Mountain Community Services	130 West Main Street	Tazewell	VA
Cumberland Mountain Community Services	526 West Main Street	Tazewell	VA
Tazewell County Social Services	315 School Street	Tazewell	VA

### *Major Employment Sites*

Employment sites serve as popular travel destinations for many of the residents of the region. For the purposes of this needs assessment, a major employment site is recognized as a single employment location within Tazewell County that employs at least 50 workers, as reported by the Virginia Employment Commission's Quarterly Census of Employment and Wages report for the fourth quarter of 2010. Municipal employment and employment that is scattered (such as the Tazewell County School Board) was excluded from this list. A complete breakdown of these major employers is denoted in Table 3-7. As this list shows, Bluefield is a regional employment destination. Most of the major employment sites in the Bluefield area are served with the exception of the 460 East Corridor.

### *Medical Centers*

Medical centers represent a significant destination for Graham Transit riders. These medical centers are detailed in Table 3-8. Of these destinations, Graham Transit serves the Bluefield Regional Medical Center, the Walmart Pharmacy, and the Westwood Health Care Center.

**Table 3-7: Major Employers Near Tazewell County, Virginia  
Sorted by Location**

Name	Address	City	State
Aramark Services	3000 College Drive	Bluefield	VA
Blue Wolf Cleaner and Degreaser	653 Camp Joy Road	Bluefield	VA
Bluefield Beverage	219 Industrial Park Road	Bluefield	VA
Bluefield College	3000 College Drive	Bluefield	VA
CNX Gas Company	2481 County Highway 290/1	Bluefield	WV
Fenner Dunlop Conveyor Services	578 Camp Joy Road	Bluefield	VA
First Community Bank	101 Saunders Lane	Bluefield	VA
First Sentinel Bank	801 S. College Ave	Bluefield	VA
Food City	1000 Leatherwood Lane	Bluefield	VA
Grants Supermarket	Tazewell, Richlands, and Bluefield (WV)	Bluefield	WV
Gress Engineering Corporation	653 Camp Joy Road	Bluefield	VA
Hardees	701 South College Avenue	Bluefield	VA
Joy Technologies	1081 Hockman Pike	Bluefield	VA
Kmart	3977 East Cumberland Road	Bluefield	WV
Limestone Dust Corporation	230 St. Clair Crossing	Bluefield	VA
Lowes' Home Centers	515 Commerce Drive	Bluefield	VA
Magic Mart	710 South College Avenue	Bluefield	VA
Marshall Miller and Associates	534 Industrial Park Road	Bluefield	VA
McDonalds	506 Commerce Drive	Bluefield	VA
Pemco	700 Fincastle Turnpike	Bluefield	VA
Pounding Mill Quarry Corporation	St. Clairs Crossing	Bluefield	VA
Wal-Mart	4001 College Avenue	Bluefield	VA
Wendy's	508 Commerce Drive	Bluefield	VA
Westwood Center	20 Westwood Medical Park	Bluefield	VA
Appalachian Agency for Seniors	216 College Ridge Road	Cedar Bluff	VA
Cumberland Mountain Community Services	113 Cumberland Road	Cedar Bluff	VA
Heintzmann Corporation	Claypool Hill Industrial	Cedar Bluff	VA
Jennmar Specialty Products	559 Wardell Industrial Park Road	Cedar Bluff	VA
Southwest Virginia Community College	724 Community College Road	Cedar Bluff	VA
Valley Mart	4061 Baptist Valley	Cedar Bluff	VA
Food Lion	620 Market Street	North Tazewell	VA
K.S. & J. Roustabout	4686 Baptist Valley Road	North Tazewell	VA
Ramey Chevrolet	27992 G.C. Perry Highway	North Tazewell	VA
Pyott-Boone Electronics	1459 Wittens Mill Road	North Tazewell	VA
Pocahontas State Correctional	920 Old River Road	Pocahontas	VA
Family Preservation Services	165 Granny's Road	Pounding Mill	VA
Gasco Drilling		Raven	VA
Knox Creek Coal	2296 Route 460 W.	Raven	VA
Clinch Valley Community Action	East Riverside Drive	Richlands	VA
Clinch Valley Community Hospital	6801 G.C. Peery Highway	Richlands	VA
Clinch Valley Physicians		Richlands	VA
Emats, Inc	1315 Route 3	Richlands	VA

**Table 3-7: Major Employers Near Tazewell County, Virginia**  
**Sorted by Location**

Name	Address	City	State
Clinch River Forest Products	316 Crosstie Lane	Tazewell	VA
Heritage Hall	181 Ben Bolt	Tazewell	VA
Tazewell Community Hospital	141 Ben Bolt	Tazewell	VA

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages.

Note: Does not include municipal employment.

**Table 3-8: Medical Facilities Near Tazewell County, Virginia  
Sorted by Location**

Name	Address	City	State
Bluefield Regional Medical Center	500 Maryland Avenue	Bluefield	WV
Kroger	3032 E Cumberland Rd	Bluefield	WV
Walmart Pharmacy	4001 College Avenue	Bluefield	VA
Westwood Health Care Center	20 Westwood Medical Park	Bluefield	VA
CVS	628 Market Street	North Tazewell	VA
Hayes Drug	704 East Riverside Drive	North Tazewell	VA
Tazewell Community Health	538 Riverside Drive	North Tazewell	VA
Walmart Pharmacy	13320 G.C. Peery Highway	Pounding Mill	VA
Jones & Counts	514 Main Street	Raven	VA
Clinch Valley Community Hospital	6801 G.C. Peery Highway	Richlands	VA
Clinch Valley Pharmacy	1000 Ben Bolt Avenue	Tazewell	VA
Tazewell Community Hospital	141 Ben Bolt	Tazewell	VA
Heritage Hall Healthcare	121 Ben Bolt Avenue	Tazewell	VA
Olde Virginia Pharmacy	836 East Fincastle	Tazewell	VA

### *Schools*

Given that one of the five socioeconomic characteristics that comprised the TDI measure was the youth population and that many of these individuals are unable to legally operate their own personal vehicle, it may be assumed that this segment of the population is one that is reliant upon public transportation as a mobility service. Furthermore, the vast majority of these individuals between the ages of 10 and 17 are full-time students and therefore enrolled in educational facilities. Many adults above the age of 18 are also associated with these institutions as a place of employment or advanced education. Table 3-9 provides a detailed list of the educational institutions located in the study area. The major educational institutions in the Bluefield area are served by Graham Transit.

**Table 3-9: Educational Facilities Near Tazewell County, Virginia  
Sorted by Location**

Name	Address	City	State
Bluefield College	3000 College Drive	Bluefield	VA
Bluefield State College	219 Rock Street	Bluefield	WV
Dudley Primary	1840 Tazewell Ave	Bluefield	VA
Graham High School	210 Valleydale Street	Bluefield	VA
Graham Intermediate	808 Greever Avenue	Bluefield	VA
Graham Middle School	1 Academic Circle	Bluefield	VA
Tazewell County Public Library	108 Huffard Drive	Bluefield	VA
Abb's Valley - Boissevain Elementary	SR 644 & SR 774	Boissevain	VA
Cedar Bluff Elementary	1089 Cedar Valley Drive	Cedar Bluff	VA
Southwest Virginia Community College	724 Community College Road	Cedar Bluff	VA
North Tazewell Elementary	300 Riverside Drive	North Tazewell	VA
Springvale Elementary	114 Schoolhouse Road	North Tazewell	VA
Raven Elementary	22 School Street	Raven	VA
Richlands Elementary School	309 East Front Street	Richlands	VA
Richlands Middle School	185 Learning Lane	Richlands	VA
Tazewell County Public Library	102 Suffolk Avenue	Richlands	VA
Richlands High School	138 Tornado Alley	Richlands	VA
Tazewell County Public Library	310 East Main Street	Tazewell	VA
Tazewell Elementary School	101 Parkview Drive	Tazewell	VA
Tazewell High School	627 Fincastle Road	Tazewell	VA
Tazewell Middle School	100 Bulldog Lane	Tazewell	VA

### *Shopping Centers*

Shopping centers are trip destinations in which residents may purchase essential items, such as groceries or general merchandise. These centers are an attractive trip end for many residents since they also serve some as a place of employment. Graham Transit currently serves the major shopping centers in Bluefield, Virginia. These shopping centers are detailed in Table 3-10.

**Table 3-10: Grocery and Retail Centers Near Tazewell County, Virginia  
Sorted by Location**

Name	Address	City	State
College Plaza Shopping Center	Commerice Drive & Rt 102	Bluefield	VA
Double Gates Grocery	401 Mountain Lane	Bluefield	VA
Food City	1000 Leatherwood Lane	Bluefield	VA
Kroger	3032 E Cumberland Rd	Bluefield	WV
Lowe's Home Improvement	515 Commerce Drive	Bluefield	VA
Sam's Club	601 Commerce Drive	Bluefield	VA
Twin City Shopping Center	S College Ave	Bluefield	VA
Walmart Supercenter	4001 College Avenue	Bluefield	VA
Westgate Shopping Center	Leatherwood Lane & SR 746	Bluefield	VA
Grant's Supermarket	315 Bluefield Ave.	Bluefield	WV
Kmart	3977 East Cumberland Road	Bluefield	WV
Food City	1135 Claypool Hill Mall Road	Cedar Bluff	VA
Food Lion	620 Market Street	North Tazewell	VA
Walmart Supercenter	13320 G.C. Peery Highway	Pounding Mill	VA
Food Lion	124 Kent Ridge Road	Richlands	VA
Tazewell Mall	Tazewell Mall Circle	Tazewell	VA

Commute patterns were analyzed at the County level, as these data are not available at the Town-level. The ACS (2005-2009) indicated that 68% of the workforce stays within the County for work, with 13.5% commuting to another Virginia County and 18% commuting to another state. The most prevalent travel time to work indicated was 0-14 minutes (38%), followed by 15-29 minutes (32%). Just fewer than 9% of the Tazewell County workforce commute an hour or more to work. The majority of workers travel by single occupant vehicle (83%). The carpool rate is noteworthy at 12.4%. Less than 1% of the workforce indicated that they use public transportation to get to work. These data are shown in Table 3-11.

**Table 3-11: Travel Patterns Associated with  
Journey-to-Work Data for Tazewell County**

Place of Residence	Tazewell County	
<b>Workers 16 Years and Older</b>	<b>17,036</b>	
Location of Workplace --	<b>Number</b>	<b>Percent</b>
In State of Residence	13,962	81.96%
a) In County of Residence	11,653	68.40%
b) Outside County of Residence	2,309	13.55%
Outside State of Residence	3,074	18.04%
Means of Transportation to Work --	<b>Number</b>	<b>Percent</b>
Car, Truck, or Van:		
a) Single Occupant:	14,097	82.75%
b) Carpool:	2,104	12.35%
Public Transportation:	75	0.44%
Bicycle:	0	0.00%
Walk:	346	2.03%
Other means:	157	0.92%
Worked at home:	257	1.51%
Travel Time to Workplace--	<b>Number</b>	<b>Percent</b>
0-14 Minutes	6,485	38.07%
15-29 Minutes	5,373	31.54%
30-59 Minutes	3,415	20.05%
An hour or more	1,506	8.84%

## Population Projections

Table 3-12 provides historical trends and projections for the population of Bluefield, Tazewell County, and the Commonwealth of Virginia. As these data show, the county's population is expected to increase over the next 20 years, but at a rate considerably slower than the statewide projections.

Table 3-12

**Population History and Projections, Town of Bluefield, Tazewell County,  
and Virginia**

Year	Town of Bluefield	Percent Change	Tazewell County	Percent Change	Virginia	Percent Change
1990	5,363		45,960		6,187,358	
2000	5,078	-5.3%	44,598	-3.0%	7,079,030	14.4%
2010	5,444	7.2%	45,078	1.1%	8,001,024	13.0%
2020 (1)	5,705	4.8%	47,226	4.8%	8,917,396	11.5%
2030 (1)	5,894	3.3%	48,776	3.3%	9,825,011	10.2%

Source: U.S. Census and the Virginia Employment Commission.

(1) Town of Bluefield's estimates based on Tazewell County's estimated rate of growth.

### Key Stakeholder Input

KFH Group staff has reached out to area stakeholders to gain additional insight with regard to transit needs in the Bluefield area. To date KFH Group staff has learned of the following potential transit needs in the region from area stakeholders:

- There is an industrial park planned along 460 to the west of Bluefield. This area will potentially need to have some sort of transit service when it is occupied. Because this park is in Tazewell County to the west of Bluefield, it may be more appropriate for Four-County Transit to serve it.
- Bluefield College would like to have a stop on or adjacent to its campus. Graham Transit currently serves the College on the Main Route, but it is not a time point and there is not a bus stop sign or waiting shelter.

## Chapter 4

# Service and Organizational Alternatives

### INTRODUCTION

This fourth chapter prepared for the Graham Transit TDP provides a range of service and organizational alternatives for the Town of Bluefield to consider when planning transit services for the six-year horizon covered by the TDP. These alternatives were developed based on the data compiled and analyzed in Chapters 1-3. The service alternatives are presented first, followed by the organizational alternatives.

These alternatives are modest in scope, reflecting the relatively slow growth in the region and the challenging economic conditions. The selected alternatives will need to be included in the Statewide Transportation Improvement Plan (STIP) for the anticipated year of implementation. DRPT is responsible for including the TDP plan elements in the STIP. If and when the TDP is amended by Graham Transit as a result of its annual review of implementation progress, the amendments need to be transmitted to DRPT for inclusion in the amended STIP, to ensure that the projects are eligible for federal funding.

### SERVICE ALTERNATIVES

The previous chapter provided an evaluation of current Graham Transit services, as well as an analysis of transit needs based on quantitative data and on input from Graham Transit customers and other key stakeholders. Through the service review, needs assessment, and outreach, there are specific service improvements that should be considered for implementation. These alternatives focus on:

1. Additional days and hours of service;
2. Minor route adjustments;

3. Improved passenger information;
4. Coordination with Bluefield College; and
5. Continued coordination with Four-County Transit.

Each service alternative is detailed in this section, and includes (where applicable):

- A summary of the service alternative,
- Potential advantages and disadvantages,
- Ridership estimates,
- An estimate of the operating and capital costs,
- Potential funding sources or issues, and
- Compatibility with local land use planning.

It should be noted that these alternatives were designed to serve as a starting point to be modified as needed based on the needs of the Town and stakeholder input. In addition, the cost information is expressed as the fully allocated costs, which means we have considered all of the program's costs on a per unit basis when contemplating expansions. This does overstate the incremental cost of minor service expansions, as there are likely to be some administrative expenses that would not be increased with the addition of a few service hours. The version of this chapter that was presented in October, 2011 included FY 2010 fully allocated costs, and this updated version uses FY 2012 fully allocated costs, based on the approved budget.

### **Service Alternative #1: Saturday Service**

Currently Graham Transit provides service Monday through Friday and on the first Saturday of the month. The passenger survey results indicated that riders would like to have transit service on every Saturday. This is consistent with the most commonly checked trip purpose, which was "shopping," with 52% of survey respondents indicating this purpose.

This alternative proposes that Graham Transit offer service on all Saturdays throughout the year. Adding these additional days of service would result in 1,180 additional service hours per year, if the schedule remained as is. It may be feasible to offer a later start for Saturday service, as many of the trips are likely to be for shopping purposes, and this would result in fewer additional annual revenue service hours.

### *Advantages*

- Offers mobility for Graham Transit users every Saturday, rather than only one Saturday a month.
- Provides schedule consistency.
- Responds to a need expressed via the passenger surveys.

### *Disadvantages*

- The only real disadvantage is cost.

### *Expenses and Funding Sources*

- Using Graham Transit's fully allocated cost per hour of \$ 31.57, 1,180 additional service hours would cost just over \$37,250 annually in operating expenses. No additional capital would be required.
- With an average farebox recovery of 4%, the net deficit for this expansion would be \$35,760. It is proposed that this deficit be split in the same manner as the current net deficit, which is 50% Federal Section 5311, and 50% local.

### *Ridership*

- Current ridership patterns suggest that ridership on Saturdays is similar to ridership on weekdays, which is unusual for a transit program. This is likely due to the fact that a majority of the trips are for shopping and only one Saturday is offered. Given this information, it is estimated that Saturday ridership would be a little lower than it is currently, as demand would be spread over four Saturdays. With 40 additional annual service days, the additional annual ridership generated by Saturday service is likely to be about 4,500 trips.

### *Compatibility with Land Uses*

- This alternative is compatible with local land uses, as it proposes to provide additional service connecting residential areas to shopping areas.

## **Alternative #2: Later Hours of Service**

The improvement that was listed the most frequently by survey respondents was to offer later hours of service. This proposal addresses that request by adding one operating hour for each of the three routes, so that the Main and Gold routes would operate until 7:00 or 7:30 p.m., and the Pocahontas route would operate until 4:00 p.m.

(There is a separate alternative that specifically addresses the Pocahontas schedule). Additional hours could be considered in the future if there is sufficient ridership during the proposed additional hour.

Adding three revenue hours per day (one for each of the three routes) would result in about 800 additional annual revenue service hours for Graham Transit.

### *Advantages*

- Provides an extra hour of service for Graham Transit riders.
- Addresses a need articulated via the passenger surveys.

### *Disadvantages*

- Would increase the annual operating expenses.
- Adds service that is not likely to be as productive as service during other parts of the day.

### *Expenses and Funding Sources*

- Using Graham Transit's fully allocated cost per hour of \$31.57, 800 additional service hours would cost about \$25,250 annually in operating expenses. No additional capital would be required.
- With an average farebox recovery of 4%, the net deficit for this expansion would be \$24,245. It is proposed that this deficit be split in the same manner as the current net deficit, which is 50% federal S. 5311 and 50% local.

### *Ridership*

- The current average ridership per revenue hour is between four and five passenger trips per revenue hour (FY 2010 data indicate 4.15 passenger trips per revenue hour and the count data were closer to five passenger trips per revenue hour). Assuming that the last hour of service will have below average ridership, it is estimated that about 2,400 additional passenger trips would be generated by an additional hour of service.

### *Compatibility with Land Uses*

- This alternative is compatible with local land uses, as it would provide greater opportunity for transit access to existing development.

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### Alternative #3: Pocahontas Route on the Same Schedule

Graham Transit riders who live in Pocahontas have indicated that they need to have service on a similar schedule to the Main and Gold routes. There are few opportunities for work or shopping in Pocahontas and there is subsidized housing in Pocahontas. The Pocahontas route currently operates from 7:00 a.m. to 3:00 p.m. on Tuesdays, Wednesdays, and Fridays, as well as on the first Saturday of the month. Increasing service on the Pocahontas route so that it is comparable with the Main and Gold routes would add about 1,875 annual revenue service hours to the Graham Transit program.

#### *Advantages*

- Provides additional mobility options for people who live in Pocahontas.
- Potentially allows for Pocahontas residents to use Graham Transit for work trips.
- Addresses a need that was articulated via the passenger survey.

#### *Disadvantages*

- Expensive to implement.
- Adds service to a route that primarily serves an area outside the Town, which may be beyond the mission of Graham Transit.

#### *Expenses and Funding Sources*

- Using Graham Transit's fully allocated cost per hour of \$31.57, 1,875 additional service hours would cost about \$ 59,200 annually in operating expenses. No additional capital would be required.
- With an average farebox recovery of 4%, the net deficit for this expansion would be \$56,800.
- It is proposed that this deficit be split 50% Federal Section 5311 and 50% local, with perhaps the local portion coming from a combination of local entities, such as the Town of Bluefield, the Town of Pocahontas, and Tazewell County.

#### *Ridership*

- Based on the current performance of the route, 1,875 additional service hours would likely result in about 7,000 additional passenger trips each year.

### ***Compatibility with Land Uses***

- This alternative is compatible with local land uses, as it would provide greater opportunity for transit access to existing development.

### **Alternative #4: Minor Route Adjustments for the Gold Route**

The three Graham Transit routes operate as deviated fixed routes, as such they do make minor route adjustments each day depending upon flag stops and people who may call to request a ride. The focus of this alternative is to suggest a few potential minor changes to the basic structure of the Gold Route. It is proposed that Hickory Hills be eliminated as a time point for the schedule. It could still be served via a deviation, but would not appear on the printed schedule. This would add a little time into the schedule that could be used to serve the industrial park as a regular time point rather than a deviation.

### ***Advantages***

- Eliminates a time point with few if any riders.
- Adds a time point with an employment destination, where deviations are regularly requested.

### ***Disadvantages***

- The only disadvantage is that this change will require new schedules to be printed.

### ***Expenses and Revenues***

- There are no additional on-going operating costs associated with this proposal; however, there are modest costs associated with changing the printed schedule.

### ***Ridership***

- This change is not expected to have a significant impact on ridership, though more riders may be attracted to the service from the Industrial Park. Without the Park being listed as a time point, there may be people who do not realize that the Gold Route will go to the Industrial Park.

### ***Compatibility with Land Uses***

- This alternative is compatible with local land uses, as it would provide greater opportunity for transit access to a major employment area.

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### *Future Gold Route Stops*

The Gold Route is also be in a position to serve any development that is to occur on the Leatherwood property, which is one of the few undeveloped parcels in the Town of Bluefield. This is a large parcel (1,071 acres) that is planned to be developed as mixed use. Figure 4-1 provides a map showing the location of this property, overlaid with the Gold Route.

### **Alternative #5: Passenger Information and Amenity Improvements**

Graham Transit does not currently provide a route map, nor are there headway signs on the vehicles. There are also very few marked stops within the community. These factors are not an issue for regular riders who know the system, but pose a barrier for new riders who are not familiar with the system. This proposal focuses on improving passenger information and amenities for Graham Transit.

The first initiative suggested for improving passenger information is the development of a route map. While Graham Transit operates on a deviated fixed-route basis, the general path of travel is fixed and could be mapped. Graham Transit could use the base maps created for this TDP as a starting point.

Another proposed improvement is the addition of head signs for the buses. While on site, it was noted that the routes are not signed. In the short-term, Graham Transit can use temporary signs placed in the windshield. When ordering new vehicles in the future, destination signs could be included.

Additional bus stop signs would also help riders identify stop locations and improve the visibility of Graham Transit within the community. It is proposed that Graham Transit Bus stop signs be installed at each of the stops listed as time points on the printed schedule. Some of these are already signed, but many are not.

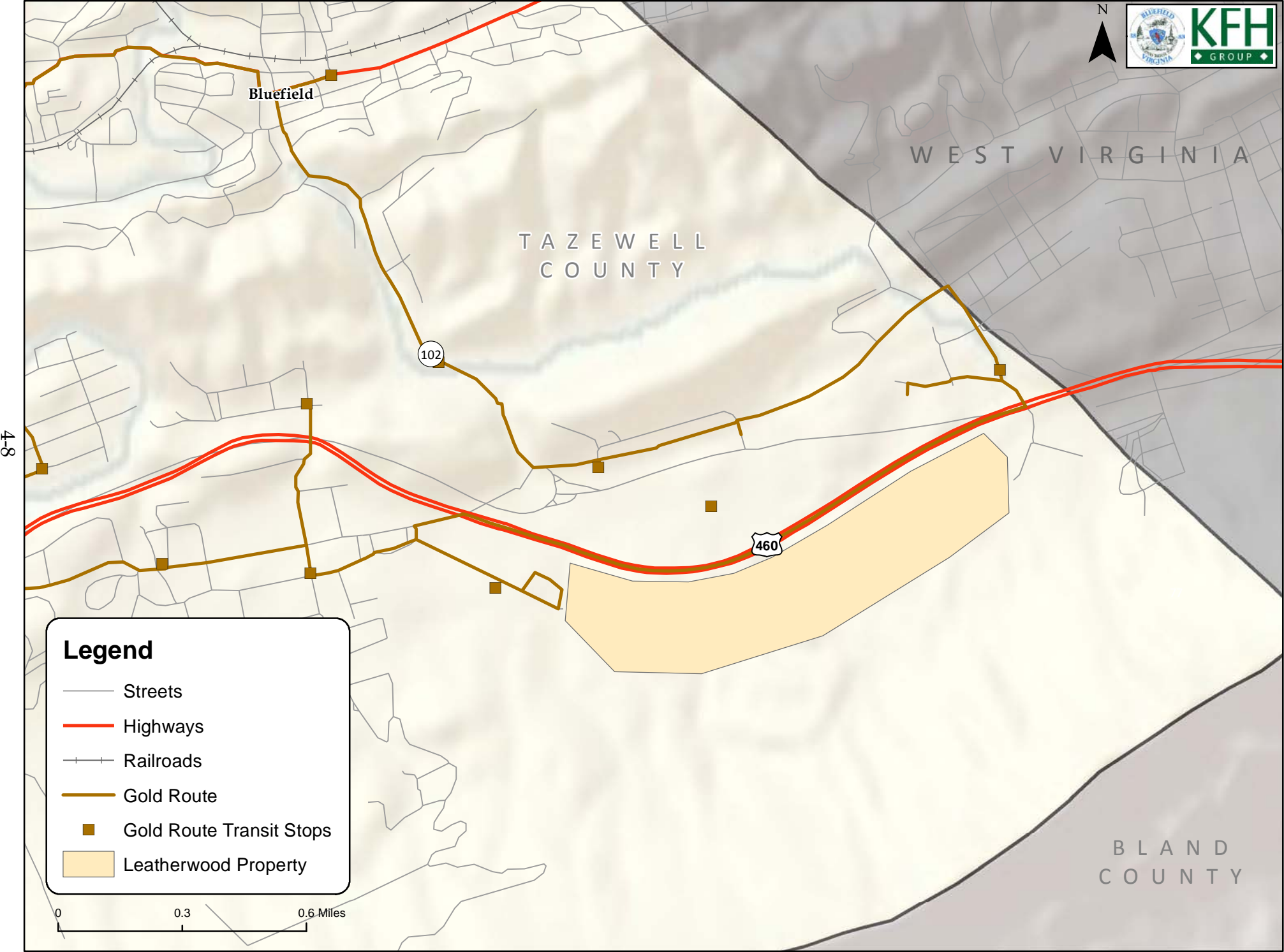
#### *Advantages*

- Provides riders with specific information regarding transit service stops and routes.
- Improves the visibility of Graham Transit within the community.

#### *Disadvantages*

- The only disadvantage is cost.

Figure 4-1: Leatherwood Property



### *Expenses and Funding*

- Cost estimates for these three proposed improvements are as follows:
  - Route map design and printing: \$5,000.
  - Head signs: short-term - minimal cost; long-term - include as part of future vehicle purchases. For non-electronic signage, both front and side, the cost per vehicle would be about \$1,800. Electronic signs are much more expensive, at between \$8,600 and \$13,000 per vehicle. (Source: Sonny Merryman, Inc.)
  - Bus stop signs are generally about \$100 installed. With about 25 unsigned stops within the system, the total cost for these signs would be about \$2,500.
- Printing and reproduction costs are part of Graham Transit's operating budget and would be funded through the typical funding ratios, which are 50% Federal Section 5311 and 50% local.
- The head signs and the bus stop signs are capital items and could be included as part of Graham Transit's annual capital budget, which is funded by Federal (80%), State (up to 15%), and local funds (between 5% and 20%).

### *Ridership*

- It is likely that providing more information about Graham Transit for the public and increasing the presence in the community will result in a small increase in ridership.

### **Alternative #6: Coordination with Bluefield College**

Bluefield College is located on College Drive in Bluefield, Virginia, and is served by Graham Transit's Main Route, though it is not a time point on the schedule and there is not a formal stop. This alternative focuses on making Bluefield College a time point on the schedule and developing a formal stop at the College, either along College Avenue, or potentially internal to the campus. The Director of Student Development for the College indicated that a more formal stop, with a sign, bench and shelter would be beneficial for the College and that the College would be supportive of the development of such a stop.

### *Advantages*

- Provides formal access to Graham Transit for the College.

- Improves the awareness of the transit program among Bluefield College students, faculty, and staff.
- Takes full advantage of the opportunity to add riders to the system. College students typically provide a good market for transit.

### *Disadvantages*

- The only disadvantage is cost.

### *Expenses and Revenue*

- The expenses associated with this alternative are those associated with changing the printed schedule and the capital associated with a fixed stop and shelter. A stop with a shelter, bench, and sign is typically about \$10,000. This expense can be funded using the typical funding ratios of 80% federal, and 20% local/state. Bluefield College has expressed a willingness to support this project financially.

### *Ridership*

- Providing a more formal stop for Bluefield College will likely result in a small increase in ridership, as students will be more aware of the transit services provided in the community.

## **Alternative #7: Meet Four-County if the Bluefield-Tazewell Work Express is Implemented**

One of the projects listed in the “unconstrained” portion of Four-County’s TDP (completed in 2009) is a work express route from Bluefield to Tazewell. The TDP does not provide additional operating details with regard to this potential route. This route is not included in Four-County’s constrained plan, as there is not a funding source currently identified to subsidize the operating expenses.

If this route were to be implemented, it would be helpful to riders if Graham Transit were to directly connect to the route from various Bluefield neighborhoods. This would allow the Four-County route to make one or maybe two key stops in the Town of Bluefield, with Graham Transit feeding the route from its route network. This may require Graham Transit to operate earlier in the morning, though the route description is not specific with regard to hours of operation. This potential improvement has not been fully analyzed with regard to advantages, disadvantages, finances, and ridership, as there are not enough details to provide this analysis. It is included so that it can be brought forward for consideration should the Bluefield-Tazewell route be implemented.

## **Regional Issues**

The rider survey asked respondents to indicate if there were geographic areas or neighborhoods where they would like to see Graham Transit service expansions. None of the most commonly cited areas were within the Town of Bluefield, Virginia. The top four areas were: Boissevain, Bluefield, WV, Abbs Valley, and Grant's. It is not feasible for Graham Transit to further expand to these areas, but it is proposed that these results be shared with Four-County Transit and Bluefield Area Transit.

## **ORGANIZATIONAL ALTERNATIVES**

Organizational alternatives include proposals for potential changes that affect the way that transit is guided, administered, and/or managed in the Town. There are two potential changes that fall under this category that are relevant for the Town of Bluefield to consider. These are discussed below.

### **Organizational Alternative #1: Regional Transit Advisory Committee**

Many transit agencies have found that it is helpful for them to have a Transit Advisory Committee. A Transit Advisory Committee is comprised of community stakeholders who have an interest in preserving and enhancing transit in the community. Typical Transit Advisory Committee members would include representatives from the following types of organizations:

- Department of Social Services
- Health Department
- Human Service Agencies
- Department of Aging/Senior Services
- Planning District Commission
- Chamber of Commerce
- Community College
- Disability advocates
- City/County Planning Department
- Elected Official Liaison

The role of a Transit Advisory Committee is to help the transit program better meet mobility needs in the community by serving as a link between the citizens served by the various entities and public transportation. A Transit Advisory Committee is a good community outreach tool for transit programs, as having an ongoing dialogue with stakeholders allows for a greater understanding for transit staff of transit needs in the community, as well as greater understanding by the community of the various

constraints faced by the transit program. Transit Advisory Committees also typically serve in an advisory capacity for TDPs and other transit initiatives.

For Graham Transit, it is suggested that a regional Transit Advisory Committee be formed, serving in an advisory capacity for Graham Transit, Four-County Transit, and Bluefield Area Transit. This will allow for enhanced regional coordination, allowing transit needs to be met in the most effective manner. It is proposed that this Committee meet twice a year -- once prior to the grant cycle so that new initiatives can be coordinated, and once mid-way through the funding year.

### *Advantages*

- Provides a forum for dialogue between the community and the transit program.
- Provides a venue for community networking.
- Can be a good community relations and marketing tool.
- Provides enhanced regional coordination.
- Eliminates the need for separate advisory groups for each operator.

### *Disadvantages*

- Takes staff time to organize and document Committee meetings and initiatives.

### *Expenses and Revenues*

- The expenses associated with forming a Transit Advisory Committee are modest and include the cost associated with the staff time spent planning and organizing the meetings, as well as any printing and presentation materials needed for the meetings.

### *Ridership*

- While forming an Advisory Committee will not have a direct effect on ridership, it may generate ideas that will help boost ridership.

## **Organizational Alternative #2: Hire a Dispatcher**

Graham Transit is currently organized under the Town Treasurer's Office, with the Treasury staff functioning as dispatch staff, answering calls from the public about transit services and route deviation requests. Treasury staff also communicate with the drivers via two-way radio. This works pretty well during regular office hours, but does

not work well when the Treasury Office is closed. Drivers can call Public Works staff for assistance during these times, but the public cannot call anyone to request information or schedule route deviations. Some of the riders who completed the surveys mentioned this issue specifically. Given that several of the service alternatives focus on operating during hours when the Treasury Office may be closed, there may be a need to hire a dispatcher. The focus of this position would be the morning hours, though ideally the system would benefit from a dispatcher being on duty throughout the service day.

### *Advantages*

- Would provide phone and dispatch coverage during hours when the Treasury Office is closed.
- Would relieve the Treasury staff of the responsibilities associated with dispatching.
- Would give transit calls a higher priority, with a dedicated staff person.
- Would give Graham Transit the option of operating demand-response transit, should this need arise.

### *Disadvantages*

- This alternative adds ongoing operating expenses.
- There may not be a large enough call volume to keep a dispatcher fully occupied, which could result in slack time for the dispatcher. One solution may be to start with a part-time morning dispatcher.

### *Expenses and Funding Sources*

- A full-time dispatcher is likely to earn about \$25,000 annually. The Town's fringe rate is about 31%, which results in a total annual cost of \$32,750. These costs assume a full-time position. The Town may wish to consider a part-time position, starting with the morning hours to phase in a dedicated dispatcher.
- These expenses would be funded through the same mechanism that currently funds operating expenses -- S.5311 (50%) and local (50%).

### *Ridership*

- While hiring a dispatcher will not have a direct effect on ridership, it may provide greater accessibility for people seeking transit information during times when the Treasury Office is closed.

## SUMMARY

This chapter provided a number of alternatives for the Town to consider with regard to public transit services over the next six years. Table 4-1 provides a summary of these proposals. While the proposals seem modest, they do represent a significant increase in transit services and expenses. If all of these proposals were to be implemented, the annual revenue service hours would increase 56% over the six-year period, from about 6,800 to about 10,700. Expenses would increase by a higher amount, reflecting the alternatives that add expenses, but not service (such as the dispatcher alternative). Ridership is projected to increase by about 37%.

These alternatives were presented to the Study Committee for review and comment in October, 2011. The Committee was asked to decide which alternatives should move forward to the six-year plan, as well as to provide any additional alternatives that may have been overlooked thus far. The chosen alternatives were carried forward to the six-year plan, which is described in Chapter 5.

## Chapter 5

# Operations Plan

### INTRODUCTION

The development of the Graham Transit TDP has included four technical memoranda, which provided an overview and analysis of public transit services in the Bluefield area; discussed goals, objectives, and standards; analyzed the need for transit services; and developed potential service and organizational alternatives that could be implemented by Graham Transit over the six-year period. The process has been guided primarily by Town staff, with input from the VDRPT and area stakeholders.

This operations plan details the specific projects that the Town of Bluefield has chosen to implement for the six-year plan, including both service and organizational initiatives. The plan includes the following elements:

1. Additional days and hours of service;
2. Minor route adjustments;
3. Improved passenger information and infrastructure;
4. Coordination with Bluefield College;
5. Improved regional coordination; and
6. Dispatch assistance.

Chapters 6 and 7 provide the companion capital and financial plans to support this operations plan. Some of the recommendations stemmed from this TDP process, while other recommendations were already planned for implementation during the six-

year planning horizon. These projects will need to be added to the Statewide Transportation Improvement Plan (STIP) upon adoption of this plan.

Each proposal is described, along with the estimated expenses and proposed revenues (in FY 2012 costs), estimates of ridership, and recommended implementation year. The costs are represented in FY 2012 dollars for this chapter so that the proposals can be compared to one another using the same cost structure. The Financial Plan (Chapter 7) presents slightly higher expenses, depending upon the implementation year, reflecting a 3% annual rate of inflation. The funding levels are based on typical funding split ratios among federal, state, and local sources.

## ADDITIONAL DAYS AND HOURS OF SERVICE

### Saturday Service

Currently Graham Transit provides service Monday through Friday and on the first Saturday of the month, as well as on the Saturdays between Thanksgiving and Christmas. The passenger survey results indicated that riders would like to have transit service on every Saturday. This is consistent with the most commonly checked trip purpose, which was “shopping,” with 52% of survey respondents indicating this purpose.

This service proposal will add 36 operating days to the schedule, resulting in 1,062 additional annual revenue service hours (assuming the current Saturday schedule).

#### *Expenses and Funding Sources*

- Using Graham Transit’s fully allocated cost per hour of \$31.57 (FY12), 1,062 additional service hours will cost just over \$33,527 annually in operating expenses. No additional capital would be required.
- With an average farebox recovery of 4%, the net deficit for this expansion is estimated to be \$ 32,186 annually. It is proposed that this deficit be split in the same manner as the current net deficit, which is 50% Federal Section 5311 and 50% local, with the Commonwealth typically providing about 15% of the net deficit. These amounts are estimated as follows:

Federal:	\$16,000
State:	\$ 4,800
Town:	\$11,400

### ***Ridership***

- Current ridership patterns suggest that ridership on Saturdays is similar to ridership on weekdays, which is unusual for a transit program. This is likely due to the fact that a majority of the trips are for shopping and only one Saturday is offered. Given this information, it is estimated that Saturday ridership would be a little lower than it is currently, as demand would be spread over four Saturdays. With 36 additional annual service days, the additional annual ridership generated by Saturday service is likely to be about 4,100 trips.

### ***Implementation***

- This service expansion is scheduled for implementation in FY 2013, assuming funding is available.

### **Later Hours of Service**

The desired improvement that was listed the most frequently by survey respondents was to offer later hours of service. This proposal addresses that request by adding one operating hour for each of the three routes, so that the Main and Gold routes will operate until 7:00 -7:30 p.m. and the Pocahontas route will operate until 4:00 p.m. Additional hours could be considered in the future if there is sufficient ridership during the planned additional hour.

Adding three revenue hours per day (one for each of the three routes) will result in about 800 additional annual revenue service hours for Graham Transit.

### ***Expenses and Funding Sources***

- Using Graham Transit's fully allocated cost per hour of \$31.57 (FY12), 800 additional service hours would cost about \$25,236 annually in operating expenses. No additional capital would be required. With an average farebox recovery of 4%, the net deficit for this expansion would be \$24,245. It is proposed that this deficit be split in the same manner as the current net deficit, which is 50% Federal Section 5311 and 50% local, with the Commonwealth contributing about 15% of the net deficit. These amounts are estimated as follows:

Federal:	\$ 12,000
State:	\$ 3,600
Town:	\$ 8,645

### *Ridership*

- The current average ridership per revenue hour is between four and five passenger trips per revenue hour (FY 2010 data indicate 4.15 passenger trips per revenue hour and the count data were closer to five passenger trips per revenue hour). Assuming that the last hour of service will have below average ridership, it is estimated that about 2,400 additional passenger trips will be generated by an additional hour of service.

### *Implementation*

- This span of service extension is scheduled for FY 2014, assuming funding is available.

## **MINOR ROUTE ADJUSTMENTS**

The three Graham Transit routes operate as deviated fixed routes, as such they do make minor route adjustments each day depending upon flag stops and people who may call to request a ride. The focus of this recommendation is to suggest a few potential minor changes to the basic structure of the Gold Route.

It is recommended that Hickory Hills be eliminated as a time-point and the Industrial Park be added as a time-point. Hickory Hills can still be served as a deviation, but will not appear as a time-point on the printed schedule. This change will highlight that the Industrial Park is served and eliminate a low-ridership stop as a time-point.

### *Expenses and Funding Sources*

- This change is cost-neutral with regard to operating cost. This change will necessitate a revision of the schedules (as do some other changes included within this plan). The cost to revise the schedules is included with the discussion of improved passenger information and infrastructure.

### *Ridership*

- This change is not expected to have a significant impact on ridership, though more riders may be attracted to the service from the Industrial Park.

### *Implementation*

- This minor change is included in FY 2013 of the plan.

## IMPROVED PASSENGER INFORMATION AND INFRASTRUCTURE

There are four projects included in the six-year plan that serve to improve passenger information and transit infrastructure. These include improved signage, both at passenger stops and on the vehicles, the development of a route map/schedule, and video cameras for the vehicles. These projects are described below.

### **Bus Stop Signs at Time Points**

Graham Transit currently has only four signed stops: the Treasury Office, Crescent View, Lowes, and Walmart. It is recommended that Graham Transit provide bus stop signs for all of the time-points listed on the printed schedule. Adding signage to these key stops will offer riders an official designated waiting spot and will increase the visibility of the transit program in the community. There are currently about 25 unique stops listed on the schedule that are not signed.

#### *Expenses and Funding Sources*

- Bus stop signs typically cost about \$100 each, installed. If 25 signs are purchased and installed, the total cost is estimated to be \$2,500 (FY 2012).
- Bus stop signs are considered capital expenses. As such, they are eligible to be funded through the Federal Section 5311 program, with a typical matching ratio of up to 80% federal, 10% DRPT, and 10% local. These amounts are estimated as follows:

Federal:	\$ 2,000
State:	\$ 250
Town:	\$ 250

#### *Ridership*

- It is expected that providing additional bus stop signs throughout the community will result in a modest increase in transit ridership through the improved visibility of the program.

#### *Implementation*

- Bus stop signs are included in FY 2013 of the plan.

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## Route Map and Schedule

As discussed in Chapter 4, Graham Transit does provide schedules for the three routes, listing the major time-points, but does not provide a route map. While all three routes operate as deviated fixed routes, it is recommended that route maps be developed showing the typical path of travel. In addition, there are several recommendations within this TDP that will result in changes to the printed schedule. The focus of this project is to develop route maps and updated schedules for the three routes. This public information should be available on the buses, at key community locations, and in an electronic format posted on the Town's website, as well as the websites of community partners, as is relevant (i.e., Bluefield College, Four County Transit, Bluefield Area Transit). Route maps prepared by the consultant for this plan can be used as needed to help in the development of the new materials.

### *Expenses and Funding Sources*

- The cost to develop and print new schedules with maps is variable, depending upon a number of factors, such as complexity of design, number of colors chosen, and quantity. For the purpose of budget development, the cost to design and print new schedules is estimated to be \$5,000 (FY 2012).
- Schedule design and printing are considered to be operating expenses, categorized under "printing and reproduction." Graham Transit's FY 2012 budget includes \$1,000 for these expenses currently. It is proposed that the first year of implementation include \$6,000, followed by an annual expense of \$1,000. These expenses would be funded in the same manner as Graham Transit's other operating expenses, with the funding ratios estimated as follows:

Federal:	\$ 3,000
State:	\$ 450
Town:	\$ 2,550

### *Ridership*

- It is expected that providing more informative information concerning the service will result in a modest increase in transit ridership through the improved visibility of the program.

### *Implementation*

- The development of new schedules is included for FY 2013, to coincide with the schedule changes included as part of this TDP.

## Head Signs on Vehicles

The Graham Transit vehicles are not currently equipped with head signs and destination signs are not used. Riders typically identify the correct route by recognizing the driver. It is recommended that Graham Transit add destination signs to the vehicles so that people do not have to ask where the bus is going or rely on recognizing the driver. For the short-term, Graham Transit can make signs to post in the windshield. For the long term, it is recommended that Graham Transit include head signs when new vehicles are purchased.

### *Expenses and Funding Sources*

- The short-term cost of providing head signs is minimal. For non-electronic signage, both front and side, the cost per vehicle is about \$1,800. Electronic signs are much more expensive, at between \$8,600 and \$13,000 per vehicle.
- Head signs for the vehicles are considered capital expenses. As such, they are eligible for funding through the Federal Section 5311 program, with a typical matching ratio of up to 80% federal share, 10% DRPT share, and 10% local share. These amounts are estimated as follows (per vehicle):

Federal:	\$ 1,440
State:	\$ 180
Town:	\$ 180

### *Ridership*

- It is expected that providing head signs on the vehicles will result in modest increases in ridership, as people will have a better understanding of where they can get to via Graham Transit.

### *Implementation*

- Simple windshield signs are recommended for FY 2012 implementation, while the head signs will be included when new vehicles are purchased (see capital plan, Chapter 6).

## Video Cameras on the Vehicles

Many transit agencies have found video cameras on board the vehicles to be useful tools, using the cameras to help deter crime as well as to fully investigate complaints, incidents, and accidents. Graham Transit does not currently have cameras

on board the vehicles. It is recommended that Graham Transit purchase cameras for its fleet and include cameras for new purchases.

### *Expenses and Funding Sources*

- Video cameras cost \$1,880 per vehicle when included with the purchase of a vehicle. Graham Transit has included the cameras as an option for the one vehicle that it is replacing in FY 2012. It will cost \$2,030 per vehicle to retro-fit the three 2009 vehicles with video cameras. (Source: Sonny Merryman). The total retro-fit expense will be \$ 6,090.
- Cameras are considered to be capital equipment and are eligible for funding assistance through the Section 5311 program, supplemented by DPRT funding assistance. The typical funding ratios are 80% federal (\$4,872); 10% state (\$609); and 10% local (\$609).

### *Ridership*

- Cameras on-board the vehicles will not likely have an impact on ridership. Generally riders have mixed opinions regarding the cameras -- some feel they add a layer of safety, while others perceive that they are being “watched.”

### *Implementation*

- The new vehicle that Graham Transit is purchasing in FY 2012 will have the cameras installed. The remaining cameras are scheduled to be purchased in FY 2013.

## **COORDINATION WITH BLUEFIELD COLLEGE**

Bluefield College, a Christian liberal arts college with an enrollment of about 800 students, is located on College Drive in Bluefield, Virginia. The College is served by Graham Transit’s Main Route, though it is not a time-point on the schedule and there is not a formal stop. It is recommended that Bluefield College be added as a formal stop and included as a time-point on the printed schedule. The College has expressed interest in having a stop, including a shelter and bench. The Town and College should work together to choose the safest and most logical location for the stop, which may be off-street adjacent to the College’s main entrance. The College has also expressed that they would be willing to help pay for the expenses associated with installing a stop and shelter on campus.

### *Expenses and Funding Sources*

- A passenger stop that includes a shelter is likely to cost about \$10,000 (FY 2012).
- Shelters are considered to be capital items, and are eligible for funding through the Federal Section 5311 program, with a typical matching ratio of up to 80% federal share, 10% DRPT share, and 10% local share. These amounts are estimated as follows (per vehicle):

Federal:	\$ 8,000
State:	\$ 1,000
Town/College:	\$ 1,000

### *Ridership*

- If 3% of the student population uses the new stop twice per week, for 40 weeks out of the year, then the addition of the stop could generate about 3,800 new annual passenger trips.

### *Implementation*

- It is recommended that Graham Transit implement this additional time point to coincide with the other changes that affect the schedule to save additional design/printing expenses (FY 2013).

## **IMPROVED REGIONAL COORDINATION - TRANSIT ADVISORY COMMITTEE (TAC)**

Graham Transit does not currently have a TAC in place. Many transit agencies have found that it is helpful for them to have a TAC comprised of community stakeholders who have an interest in preserving and enhancing transit in the community. Because Graham Transit is a small program, and there are many transit issues in the region that extend beyond the borders of the Town of Bluefield, it is recommended that a regional TAC be formed. Membership should include representatives from the following agencies:

- Four County Transit,
- Bluefield Area Transit (WV)
- Bluefield College (VA)
- Bluefield State (WV)

- Southwest Virginia Community College
- The Chamber of Commerce
- Tazewell County Department of Social Services
- The Cumberland Plateau PDC
- DRPT

Additional committee membership could include representatives from the following types of agencies:

- Health Department
- Human Service Agencies
- Department of Aging/Senior Services
- Disability Advocates
- City/County Planning Department
- Elected Official Liaison

The role of a TAC is to help the transit program better meet mobility needs in the community by serving as a link between the citizens served by the various entities and public transportation. A regional TAC can also share information regarding transit needs in the region, such as the survey results from the Graham Transit on-board survey, which included comments concerning several areas outside of the Town of Bluefield, such as Abbs Valley, Boissevain, and Bluefield, West Virginia.

A TAC is also a good community outreach tool for transit programs, as having an ongoing dialogue with stakeholders allows for a greater understanding for transit staff of transit needs in the community, as well as greater understanding by the community of the various constraints faced by the transit program. TACs also typically serve in an advisory capacity for TDPs and other transit initiatives. It is recommended that the TAC meet at least twice a year, one of which coincides with the development of the DPRT grant for the coming year.

### *Expenses and Funding Sources*

The expenses associated with forming a TAC are modest and include the cost associated with the staff time spent planning and organizing the meetings, as well as any printing and presentation materials needed for the meetings.

### *Implementation*

It is recommended that Graham Transit, along with its regional partners, implement a Regional TAC in FY 2012.

## DISPATCH ASSISTANCE

Graham Transit is currently organized under the Town Treasurer's Office, with the Treasury staff functioning as dispatch staff, answering calls from the public about transit services, and route deviation requests. Treasury staff also communicate with the drivers via two-way radio. This works pretty well during regular office hours, but does not work well when the Treasury Office is closed. Drivers can call Public Works staff for assistance during these times, but the public cannot call anyone to request information or schedule route deviations. Some of the riders who completed the surveys mentioned this issue specifically. Given that several of the service alternatives focus on operating during hours when the Treasury Office may be closed, there may be a need to hire a dispatcher. The focus of this position would be the morning hours, though ideally the system would benefit from a dispatcher being on duty throughout the service day.

It was suggested by a Study Committee member that drivers could fill this role initially, covering only the morning hours prior to the Treasury Office opening, and also covering the last hour and a half of the service day after the Treasury Office has closed. Drivers could cover these hours by changing the current driving shifts and hiring another driver to help cover the additional hours. Over time a dispatcher could be hired for all-day coverage to eliminate the need for the Treasury Office to answer transit calls.

### *Expenses and Funding Sources*

- A full-time dispatcher is likely to earn about \$25,000 annually. The Town's fringe rate is about 31%, which results in a total annual cost of \$32,750. These costs assume a full-time position. The Town may wish to consider a part-time position, starting with the morning hours to phase in a dedicated dispatcher.
- If the Town wishes to start with dispatch assistance only during the periods when the Treasury Office is closed, then the additional pay hours would be about three hours per weekday and 11 hours on Saturdays, for a total of about 1,350 annual pay hours, or about \$17,700 annually (based on \$10 per hour and a 31% fringe rate).
- These expenses would be funded through the same mechanism that currently funds operating expenses – Section 5311 (50%), local (35%), and state (15%).

### ***Ridership***

- While hiring a dispatcher will not have a direct effect on ridership, it may provide greater accessibility for people seeking transit information during times when the Treasury Office is closed.

### ***Implementation***

- The part-time dispatch assistance is included beginning in FY 2013, with the full-time dispatch assistance added in FY 2015.

## **ADDITIONAL POTENTIAL PROJECTS**

As outlined in Chapter 4, there were several requests for additional service to Pocahontas and this service was highlighted as a service alternative. It was not chosen for implementation for the six-year plan, primarily because of the expenses associated with the expanded days and hours. If additional funding sources become available, either for Graham Transit or for Four-County Transit, additional service between Pocahontas and Bluefield should be considered. This project, and any others that may become relevant, but were not identified through the TDP process, can be added to the six-year plan through the annual update process.

## **FUTURE DEVELOPMENT**

As discussed in Chapter 4, there is a large piece of property within the Town of Bluefield (the Leatherwood property) that will be developed at some point. Plans for the property will likely include mixed uses that should be served by transit. Specific services for this area have not been included in this TDP, as full development of the property is not likely within the six-year planning period. It should be noted this area is currently served by the Gold Route, which could be expanded if needed.

## **Chapter 6**

# **Capital Improvement Plan**

### **INTRODUCTION**

This section of the TDP describes the major capital projects (vehicles, facilities, and equipment) needed to support the provision of public transportation in the Town of Bluefield for the six-year period covered by this TDP. The Operations Plan does not contemplate major expansions, as such, the capital improvement plan is modest in scope.

### **VEHICLE REPLACEMENT AND EXPANSION PROGRAM**

As described in Chapter 1, Graham Transit owns five vehicles; four of which are light duty transit buses; and one of which is a support vehicle. The revenue service vehicles range in model years from 2002 to 2009.

The vehicle inventory, with the estimated replacement years is provided as Table 6-1. This TDP has included additional hours and days of service, but does not include any projects that require additional vehicles, so a vehicle expansion plan has not been included.

### **FACILITIES**

Graham Transit is not currently in need of any additions to its operating and maintenance facility. Modest budget amounts have been included in each year's capital budget for shop equipment (see Chapter 7).

**Table 6-1: Graham Transit Vehicle Inventory and Replacement Schedule**

<b>Local Fleet #</b>	<b>Model Year</b>	<b>Manu- facturer</b>	<b>Model and Type</b>	<b>Seating Capacity</b>	<b>Wheel-chair Stations</b>	<b>Use</b>	<b>Condition</b>	<b>Mileage January 2011</b>	<b>Estimated Replacement Year</b>
82	2009	Ford	Supreme Bus	14	2	Regular Route	Excellent	54,468	2016
81	2009	Ford	Supreme Bus	14	2	Regular Route	Excellent	59,100	2015
83	2009	Ford	Supreme Bus	14	2	Regular Route	Excellent	53,855	2016
20	2002	Jeep	Grand Cherokee SUV	5	0	Staff Car	Good	50,583	2013
61	2006	Ford	Supreme Bus	14	2	Back-Up/Breaks	Good	104,779	2012

## **PASSENGER FACILITIES AND INFORMATION**

This plan does call for the addition of a sheltered stop for Bluefield College. The plan also calls for the addition of bus stop signs for all of the time-point stops listed on the printed schedule. Funds are also included each year after the initial purchase of bus stop signs for upkeep and replacement of signs. A passenger waiting shelter is also included (FY 2015), should there be a need for another one within the system. These projects are included in the financial plan (Chapter 7).

## **TECHNOLOGY**

As discussed in Chapter 5, Graham Transit will be adding video cameras to the vehicles. Other technological improvements are not likely to be necessary for Graham Transit over the next six years. The financial plan does include a line item for technology equipment to be used to upgrade computer software and hardware over the six-year planning period.



## Chapter 7

### Financial Plan

#### INTRODUCTION

This chapter provides a financial plan for funding existing and proposed transit services in the Town of Bluefield for the six-year planning period. It should be noted that there are currently a number of unknown factors that will likely affect transit finance in the Town over the course of this planning period, including the reauthorization of SAFETEA-LU, and the future economic condition of the Town and the Commonwealth of Virginia. The budgets were constructed with the information that is currently available, including the VDRPT Statewide Transportation Improvement Program, the FY 2012 DRPT grant, and the Town's FY 2012 approved budget. The funding ratios are based on historical funding ratios for rural transit programs in the Commonwealth. The exact revenue available each year will be dependent upon the availability of funding from the federal Section 5311 program, the Commonwealth Transportation Fund, and local sources.

#### OPERATING EXPENSES AND FUNDING SOURCES

Table 7-1 provides the financial plan for transit operations for Graham Transit including operating, maintenance, and administrative expenses. The six-year plan includes the current base service and then adds the projects discussed in the Operations Plan (Chapter 5). This plan is modest in scope, reflecting the limited need for additional service in the Town and the current economic climate.

As the table indicates, the annual operating expenses for Graham Transit are projected to grow from about \$ 216,000 to \$ 356,518 over the six-year planning period, including inflation, one additional staff person, and expanded hours of service.

Pending the reauthorization of SAFETEA-LU, we do not know what the level of federal transit funds will be, though it should be noted that they have generally risen

**Table 7-1: Graham Transit TDP Financial Plan for Operations**

<b>Projects (1)</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>
<i>Current Annual Service Hours</i>	6,842	6,842	6,842	6,842	6,842	6,842
Additional Saturday Service		1,062	1,062	1,062	1,062	1,062
Later Hours of Service			800	800	800	800
<b>Total Transit Service Hours</b>	<b>6,842</b>	<b>7,904</b>	<b>8,704</b>	<b>8,704</b>	<b>8,704</b>	<b>8,704</b>
<i>Projected Operating Expenses</i>						
Cost Per Revenue Hour	\$ 31.57	\$ 35.39	\$ 35.59	\$ 38.61	\$ 39.77	\$ 40.96
Graham Transit Operating Expenses- Current Level of Service (2)	\$ 216,000	\$ 222,480	\$ 229,154	\$ 236,029	\$ 243,110	\$ 250,403
Additional Saturday Service		\$ 34,533	\$ 35,569	\$ 36,636	\$ 37,735	\$ 38,867
Later Hours of Service		\$ -	\$ 26,794	\$ 27,598	\$ 28,426	\$ 29,279
Map and Schedule Design and Printing (3)		\$ 5,000	\$ -	\$ -	\$ -	\$ -
Staff Addition- Dispatch Assistance		\$ 17,700	\$ 18,231	\$ 35,787	\$ 36,860	\$ 37,966
<b>Total Projected Operating Expenses</b>	<b>\$ 216,000</b>	<b>\$ 279,713</b>	<b>\$ 309,749</b>	<b>\$ 336,050</b>	<b>\$ 346,131</b>	<b>\$ 356,515</b>

*Notes:*

(1) Implementation years are estimated. Implementation will be based on funding availability.

(2) Assumes 3% rate of inflation each year.

(3) In addition to the \$1,000 already included in the annual budget.

**Table 7-1: Graham Transit TDP Financial Plan for Operations (continued)**

<b>Anticipated Funding Sources</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>
<i>Federal</i>						
Section 5311	\$ 104,000	\$ 139,857	\$ 154,874	\$ 168,025	\$ 173,066	\$ 178,258
Subtotal, Federal	\$ 104,000	\$ 139,857	\$ 154,874	\$ 168,025	\$ 173,066	\$ 178,258
<i>State</i>						
Formula Assistance	\$ 28,114	\$ 40,607	\$ 45,022	\$ 48,967	\$ 50,480	\$ 52,037
<i>Local Contributions</i>						
Town of Bluefield	\$ 75,886	\$ 90,249	\$ 100,253	\$ 109,458	\$ 112,985	\$ 116,620
Revenues- Farebox	\$ 8,000	\$ 9,000	\$ 9,600	\$ 9,600	\$ 9,600	\$ 9,600
Total Local	\$ 83,886	\$ 99,249	\$ 109,853	\$ 119,058	\$ 122,585	\$ 126,220
<b>Total Projected/Proposed Operating Funds/Revenues</b>	<b>\$ 216,000</b>	<b>\$ 279,713</b>	<b>\$ 309,750</b>	<b>\$ 336,050</b>	<b>\$ 346,130</b>	<b>\$ 356,515</b>

with each transportation funding reauthorization. These funds are shown to increase with inflation, along with the expenses. A 3% annual rate of inflation has been applied, along with additional modest increases to reflect additional hours of service and a new staff position. State funds are also included, using the typical current funding level, which is about 15% of the net deficit.

## **VEHICLE PURCHASE EXPENSES AND FUNDING SOURCES**

Table 7-2 offers the financial plan for vehicle replacement over the six-year period. As discussed in Chapters 5 and 6, this plan does not include the need to increase the size of the fleet. The funding split is generally assumed to be 80% federal, 10% state, and 10% local. The plan includes a total of five replacement vehicles.

The vehicles scheduled for replacement in FY 2015 and FY 2016 should include security cameras and head signs.

## **FACILITY IMPROVEMENT EXPENSES AND FUNDING SOURCES**

The financial plan for facilities, equipment, and other capital is provided in Table 7-3. These expenses are those associated with passenger amenity and information improvements, as well as the security cameras, tools, and routine computer upgrades. These expenses are also assumed to be funded with federal (80%), state (10%), and local (10%) funds.

**Table 7-2: Graham Transit TDP Financial Plan for Vehicle Replacement and Expansion**

Number of Vehicles	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Replacement	1	1	0	1	2	0
Expansion	0	0	0	0	0	0
Total Vehicles	1	1	0	1	2	0

*Vehicle Costs*

Replacement	\$	56,000	\$	25,750	\$	-	\$	63,155	\$	130,099	\$	-
Expansion	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Total Projected Vehicle Costs	\$	56,000	\$	25,750	\$	-	\$	63,155	\$	130,099	\$	-

*Anticipated Funding Sources*

Federal	\$	44,800	\$	20,600	\$	-	\$	50,524	\$	104,079	\$	-
State	\$	5,600	\$	2,575	\$	-	\$	6,315	\$	13,010	\$	-
Local	\$	5,600	\$	2,575	\$	-	\$	6,315	\$	13,010	\$	-
Total Vehicle Funding	\$	56,000	\$	25,750	\$	-	\$	63,155	\$	130,099	\$	-

**Table 7-3: Graham Transit TDP Financial Plan for Facilities, Equipment, and Other Capital**

<b>Projects</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>
On-Board Cameras (1)	\$	6,090	\$	-	\$	-
Miscellaneous Technology Equipment	\$	1,500	\$	1,545	\$	1,639
Shop Equipment, Tools, Miscellaneous Equipment	\$ 500	\$ 515	\$ 530	\$ 546	\$ 563	\$ 580
Passenger Shelters	\$ -	\$ 10,300	\$ -	\$ 10,927	\$ -	\$ 11,593
Bus Stop Signs	\$ -	\$ 2,575	\$ 530	\$ 546	\$ 563	\$ 580
<b>Total Projected Non-Vehicle Capital Expenses</b>	<b>\$ 500</b>	<b>\$ 20,980</b>	<b>\$ 2,606</b>	<b>\$ 13,611</b>	<b>\$ 2,765</b>	<b>\$ 14,440</b>
<b>Anticipated Funding Sources</b>						
Federal	\$ 400	\$ 16,784	\$ 2,085	\$ 10,889	\$ 2,212	\$ 11,552
State	\$ 50	\$ 2,098	\$ 261	\$ 1,361	\$ 276	\$ 1,444
Local	\$ 50	\$ 2,098	\$ 261	\$ 1,361	\$ 276	\$ 1,444
<b>Total Projected Non-Vehicle Capital Revenue</b>	<b>\$ 500</b>	<b>\$ 20,980</b>	<b>\$ 2,606</b>	<b>\$ 13,611</b>	<b>\$ 2,765</b>	<b>\$ 14,440</b>

(1) The on-board cameras are for the three 2009 vehicles. The vehicle scheduled to be purchased in 2012, 2015, and 2016 will be equipped with the system.

## Chapter 8

# TDP Monitoring and Evaluation

### INTRODUCTION

The Graham Transit TDP, developed over a five-month period, has included the following tasks:

- Detailed documentation and analysis of current public transportation services;
- A peer review showing the service and financial characteristics of transit programs similar in scope to Graham Transit;
- A transit needs analysis, including demographic analysis, land use analysis, a review of relevant planning documents, stakeholder interviews, and rider surveys;
- The development of service and organizational alternatives;
- The development of recommendations for transit improvements for inclusion in the TDP, with improvements tentatively identified by year; and
- A financial plan highlighting the funding requirements and potential funding sources for the recommended transit improvements in the region.

The plan is modest in nature, but does include some growth. Expanded service hours have been included in the plan and they are attached to particular years, but these projects may slip to future years if the proposed funding arrangements do not come to fruition. This TDP may need to be updated during the six-year planning period to reflect funding availability. This TDP was formally adopted by the Bluefield Town Council in December 2011.

## **COORDINATION WITH OTHER PLANS AND PROGRAMS**

The study team for this TDP consulted a number of relevant plans and programs during the development of the six-year plan. The following documents were reviewed, with their associated recommendations incorporated where appropriate:

- Four County Transit TDP (2009)
- Town of Bluefield Comprehensive Plan
- Cumberland Plateau Human Service Mobility Plan
- Statewide Transportation Improvement Plan
- Cumberland Plateau Planning District Commission 2035 Rural Long Range Transportation Plan

The projects included in this TDP should be reflected in these area plans and studies as they are updated. The formation of the regional TAC will be a good mechanism to ensure that the projects incorporated within this TDP are included in internal and external plans in the Bluefield region and statewide (where appropriate). As mentioned in previous chapters, the recommended projects from this TDP will need to be incorporated into the public transportation element of the DRPT State Transportation Improvement Program (STIP).

## **SERVICE PERFORMANCE MONITORING**

A number of proposed service standards were developed for Graham Transit (Chapter 2) for this TDP. The purpose of including these standards was to develop some objective measurements of performance that Graham Transit can use to monitor transit services in the future and make objective, performance-based service planning decisions. It is recommended that Graham Transit monitor performance monthly.

## **ANNUAL TDP MONITORING**

For this TDP it is particularly important that Graham Transit monitor the progress each fiscal year. Projects may also need to shift from one year to the next if funding is not available. Alternatively, if the reauthorization of the federal transportation funding program is more generous than SAFETEA-LU, projects could potentially be implemented ahead of schedule or additional projects could be added to the TDP.

DRPT guidance currently requires that grantees submit an annual TDP update letter that describes the progress that has been made toward implementing the adopted TDP. This letter should include the following elements:

- Operating statistics for the 12-month period, including the ridership attributed to any new proposals implemented as a result of the TDP.
- Any changes to system goals, objectives, or service standards.
- A description of any service or facility improvements that have been implemented during the 12-month period.
- An update to the TDP recommendations to identify additional projects, deferment of projects to later years, or elimination of projects.
- Updates to the financial plan to more accurately reflect current funding scenarios.



## **APPENDIX A**

### **On-Board Rider Survey**



**Graham Transit**  
**ON-BOARD RIDER SURVEY**

**Graham Transit** would like rider input! Please complete this rider survey and return it to the surveyor when you get off the vehicle. If you have already filled out a survey **this week**, you do not need to fill this out again.

**Thank you!**

- 
- 
1. What route are you **currently** riding?  
☐ (1) Main Route      ☐ (2) Gold Route      ☐ (3) Pocahontas Route
2. How did you get from your starting place to the bus stop for this trip?  
☐ (1) Walked      ☐ (3) Drove car and parked      ☐ (5) Other: \_\_\_\_\_  
☐ (2) Bicycled      ☐ (4) Dropped off by someone
3. What was the location where you boarded the bus? If you transferred, the place where you first boarded a bus for this trip. Please indicate the street address, intersection, building, or landmark. *For example, Walmart.* Please be specific.  
\_\_\_\_\_
4. Did you or will you have to transfer buses in order to complete this trip?  
☐ (1) Yes, one transfer      ☐ (2) Yes, two or more transfers      ☐ (3) No (If No, Skip to question #6)
5. What bus route(s) will you transfer to or did you transfer from?  
☐ (1) Main Route      ☐ (2) Gold Route      ☐ (3) Pocahontas Route      ☐ (4) Bluefield Transit (WV)
6. How will you get to your ending place from the last bus you ride for this trip?  
☐ (1) Walk      ☐ (3) Drive my car      ☐ (5) Other: \_\_\_\_\_  
☐ (2) Bicycle      ☐ (4) Picked up by someone
7. What is your destination? Please indicate the street address, intersection, building, or landmark. *For example, Hickory Hills.* Please be specific.  
\_\_\_\_\_
8. What is the purpose of your bus trip today? ***You may check more than one.***  
☐ (1) Work      ☐ (4) Social/ Recreation      ☐ (7) Other: \_\_\_\_\_  
☐ (2) Shopping      ☐ (5) Medical  
☐ (3) School      ☐ (6) Government Service Agency
9. If Graham Transit were to make service improvements, what would be your top three choices?  
(1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_
10. If Graham Transit were to serve additional neighborhoods or geographic areas, what would be your top three choices?  
(1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_

**OVER, PLEASE** ☞

11. Please rate your satisfaction with Graham Transit services in the following areas:

	Very Satisfied (1)	Satisfied (2)	Unsatisfied (3)	Very Unsatisfied (4)
On-time performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convenience of bus routes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convenience of bus stop locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Days of service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hours of service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frequency of service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cost of bus fare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cleanliness of the buses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Driver courtesy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety and security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Telephone customer service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Usefulness of Graham Transit/ Town of Bluefield website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. In what city, town, or community do you live? \_\_\_\_\_

13. How would you classify yourself?

- ☐ (1) African American      ☐ (3) Caucasian      ☐ (5) Native American  
☐ (2) Asian American      ☐ (4) Hispanic/Latino      ☐ (6) Other

14. Are you: ☐ (1) Male    ☐ (2) Female    15. Do you have a driver's license? ☐ (1) Yes    ☐ (2) No

16. How many vehicles (cars, trucks, motorcycles) are available in the household where you live?

- ☐ 0    ☐ 1    ☐ 2    ☐ 3    ☐ 4 or more

17. Please indicate your age group.

- ☐ (1) Under 12 years old      ☐ (3) 18-25 years old      ☐ (5) 56-64 years old  
☐ (2) 12-17 years old      ☐ (4) 26-55 years old      ☐ (6) 65 years old or older

18. Which of the following best describes your current employment status? ***You may check more than one.***

- ☐ (1) Employed, full-time      ☐ (4) Student, full-time      ☐ (7) Unemployed  
☐ (2) Employed, part-time      ☐ (5) Student, part-time      ☐ (8) Other  
☐ (3) Retired      ☐ (6) Homemaker

19. What is your annual household income level? ***Please check only one.***

- ☐ (1) \$14,999 or less      ☐ (3) \$30,000-\$44,999      ☐ (5) \$60,000- \$74,999  
☐ (2) \$15,000- \$29,999      ☐ (4) \$45,000-\$59,999      ☐ (6) \$75,000 or higher

20. Please provide any comments you may have concerning public transportation in the Town of Bluefield, Tazewell County, or the broader region.

## **APPENDIX B**

### **Transit Dependence Index**



## Appendix B: Transit Dependence Index (TDI)

Public transportation needs are defined in part by identifying the relative size and location of those segments within the general population most likely to be dependent upon some form of public transit services. Once the location of these transit dependent populations is determined and analyzed, it becomes possible to evaluate the extent to which current services meet the needs of community residents. To identify the areas of highest transportation need, the TDI was calculated for each of the Census Block Groups in the Graham Transit study area.

The TDI is an aggregate measure that utilizes recent data from the American Community Survey (ACS) five-year estimates and the United State Decennial Census to display relative concentrations of transit dependent populations within a study area. The following section describes the formula used to compute the TDI for each of these block groups, as well as a brief description of the six factors used in its calculation.

$$\text{TDI} = \text{PD} * (\text{AVNV} + \text{AVE} + \text{AVY} + \text{AVD} + \text{AVBP})$$

- PD: population per square mile
- AVNV: amount of vulnerability based on presence of no vehicle households
- AVE: amount of vulnerability based on presence of elderly adult population
- AVY: amount of vulnerability based on presence of youth population
- AVD: amount of vulnerability based on presence of disabled population
- AVBP: amount of vulnerability based on presence of below-poverty population

The input values for the population density (PD) factor follow the previously mentioned classification scheme of the stand-alone population density analysis. A block group with a population density greater than 2,000 persons per square mile is presented a value of four, while a block group with a population density greater than 1,000 persons per square mile and less than or equal to 2,000 is given a PD factor of three. Continuing in intervals of 500, a block group with a population density greater than 500 and less than or equal to 1,000 persons per square mile is presented a PD factor of two, while a block group with less than or equal to 500 persons per square mile and at least one resident is given a value on one. In the event of a block group having zero residents, that particular block group is presented a value of zero.

The following five independent variables represent specific socioeconomic characteristics of the residents in the study area, which are described in the previous bullets. These five factors are given a value that represents their prevalence in the analyzed block group. For each of the factors, an individual block group comprised of a

number of vulnerable persons or households that is below the average number for all block groups in the study area is presented with a value of one. A value of two is given to a block group where its vulnerable population is greater or equal to the study area average (SAA), but less than one and one-third times the SAA. A block group with a vulnerable population greater or equal to one and one-third the SAA, but less than one and two-thirds the SAA is presented with a value of three. This scoring scheme continues for a block group with a vulnerable population greater than one and two-thirds the SAA, but less than twice the SAA for a block group, which is presented a value of four. Finally, any block group that has a vulnerable population or household population that is more than twice the SAA for a block group is given the highest value of five. Once this process is completed for each of the five socioeconomic characteristics, the factors are plugged into the TDI equation in order to determine the transit dependence for each block group within the study area. Each individual block group is then given a TDI classification (very low, low, moderate, high, or very high) that is assigned in a manner similar to the independent variables in the TDI. The difference being that the TDI or dependent variable value in the formula replaces the previously described socioeconomic characteristics or independent variables. Thus, a block group with a TDI below the average TDI score for a block group in the study area is given a value of one or categorization of very low, and so on.

### *Transit Dependence Index Percent (TDIP)*

The TDIP provides a complementary analysis to the TDI measure and its reliance upon the population density factor. The TDIP measure is nearly identical to the TDI measure in every aspect with the lone exception being its exclusion of the persons per square mile (PD) factor. As a result, the TDIP for each block group in the Graham Transit study area is calculated with the following formula and its five independent variables.

$$\text{TDIP} = \text{DVNV} + \text{DVE} + \text{DVY} + \text{DVD} + \text{DVBP}$$

- DVNV: degree of vulnerability based on presence of no vehicle households
- DVE: degree of vulnerability based on presence of elderly adult population
- DVY: degree of vulnerability based on presence of youth population
- DVD: degree of vulnerability based on presence of disabled population
- DVBP: degree of vulnerability based on presence of below-poverty population

Accordingly, the exclusion of the PD factor from the TDIP formula results in the maximum score a single block group may attain being lowered from 100, as is found in the previously described TDI measure, to a score of 25. By removing the PD factor, the TDIP measures the degree of vulnerability, or percent of individuals exemplifying a

particular socioeconomic characteristic out of the overall general population of a block group, rather than the amount of vulnerability, or strictly aggregate number of individuals exemplifying a particular socioeconomic characteristic within a particular block group, that is measured by the TDI. This sole difference between the two indices enables the TDIP to represent a needs assessment that highlights the overall predominance of a specific population throughout a block group's general residence instead of a highlighting of those block groups that have a higher density of persons and consequently an increased chance of having a higher concentration of vulnerable populations simply due to an increase in the block group's overall population.

The five-tiered categorization found in the TDI measure is also utilized for the TDIP measure and is determined by use of the same criteria.



## **APPENDIX C**

### **Environmental Justice Index**



## Appendix C: Environmental Justice Index (EJI)

EJI is an aggregate measure that may be employed with mapping software to effectively display relative concentrations of racial and/or ethnic minorities and low-income residents throughout the study area. The structure for the EJI was introduced in a 2004 National Cooperative Highway Research Program report in order to offer “practitioners an analytical framework to facilitate comprehensive assessments of a proposed transportation project’s impacts on affected populations and communities.<sup>1</sup>” The application of the EJI within this needs assessment will ensure a high standard of social and economic equality, as outlined in Title VI of the Civil Rights Act of 1964, when evaluating potential modifications to the present public transportation services in the region.

Similar to both the TDI and TDIP, the data utilized for the EJI was compiled by the ACS’s five-year estimates, which enabled examination of socioeconomic characteristics at a block group level of analysis, and the United States Decennial Census, which provided the necessary geographic information (e.g., block group boundaries). The data employed by the EJI is described in the subsequent bulleted points, which follow the EJI formula and its three independent variables.

$$EJI = PD * DVM * DVBP$$

- PD: population per square mile
- DVM: degree of vulnerability based on presence of minority population
- DVBP: degree of vulnerability based on presence of below-poverty population

The EJI scoring system is nearly identical to the scoring system used by the TDI measure with the lone exception being the EJI measure’s utilization of two independent socioeconomic variables that are multiplied by the PD factor, which is different from the TDI measure’s use of five independent socioeconomic variables that are summed and multiplied by the PD factor. Subsequently, the score of the EJI will range from zero to

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<sup>1</sup>Forkenbrock, D. and Sheeley, J. 2004. *Effective Methods for Environmental Justice Assessment*. NCHRP Report 532. Transportation Research Board, National Research Council. Washington, DC: National Academy Press.

100, with a higher score indicating a block group where a larger proportion of minority residents and/or low-income persons are present in an area with an increased population density. The score for the PD factor still ranges from zero to four, which was used in the TDI measure, and the score for the other two socioeconomic characteristics is determined in an equivalent manner as the five additional characteristics used in both the TDI and TDIP measures. Furthermore, the overall block group scores are then compared to the previously described SAA and each block group is accordingly placed into one of five categories (very low, low, moderate, high, or very high) within the classification scheme. This scheme is identical to the five-tier structure described in the TDI and TDIP measures.